TECHNOLOGY DEPARTMENT

Fleet Owner

JANUARY, 1950 A McGRAW-HILL PUBLICATION

IN THIS ISSUE

A Salute to the Motor Truck

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DETROIT

Tomorrow's Truck Today...
For Every Kind of Delivery Job

HERE'S the new kind of truck that is way out in front... the sensational White 3000! Truck operators everywhere like its time-saving and cost-saving advantages because it is completely engineered to lower the per unit cost of delivery... on every kind of delivery job!

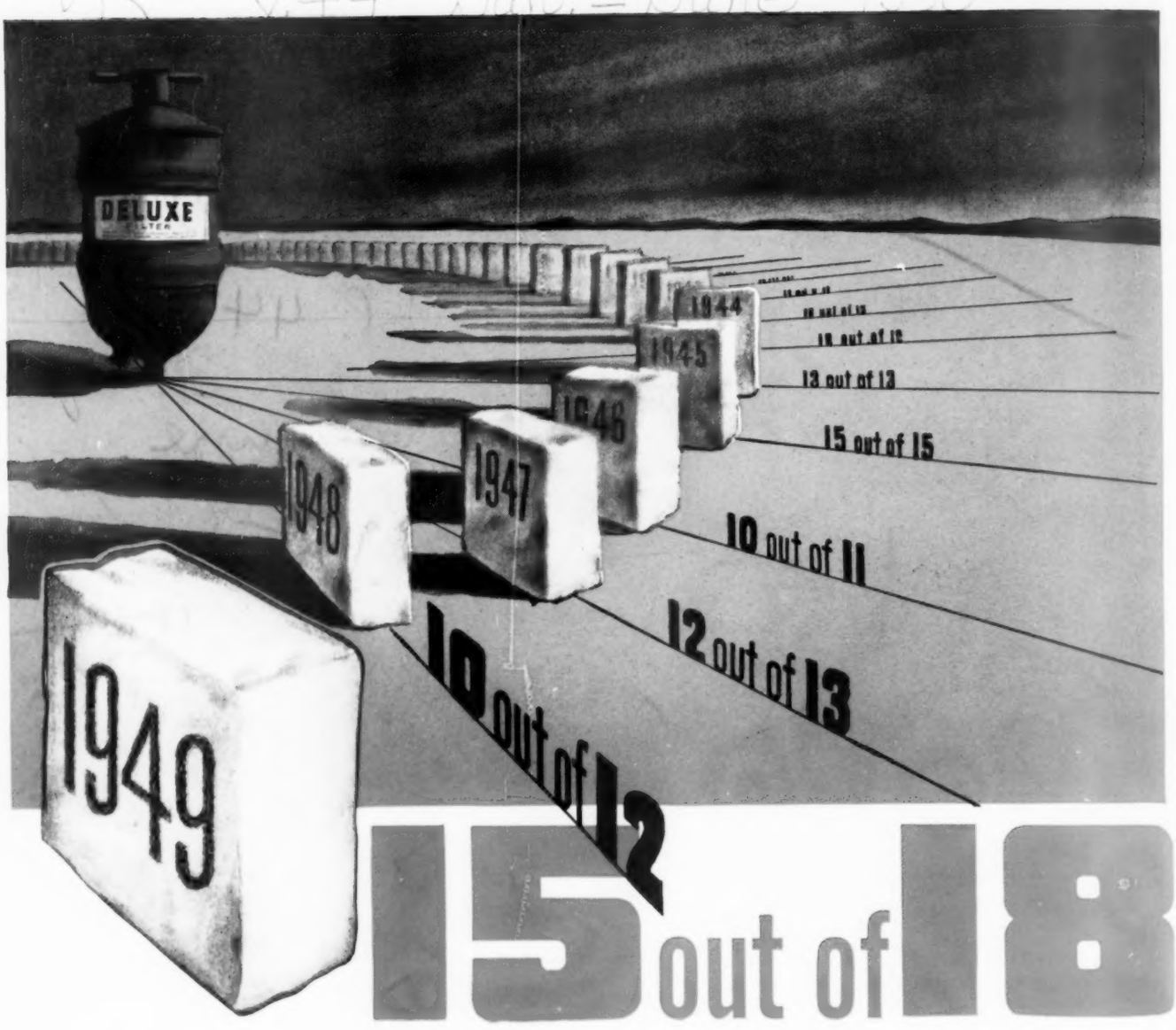
Its exclusive new design permits better maneuverability and roadability, new driving ease, time and energy savings. It means greater body capacity in the same over-all truck length... more deliveries at lower cost per unit delivered. Its power-lift cab is saving hundreds of dollars in maintenance costs.

On cross-country runs or in heavy city traffic, it's the new truck that is miles ahead. Ask your White Representative for a demonstration of the quality features of the new White 3000 that mean extra-earning power.

White
SUPER POWER
3000

THE WHITE MOTOR COMPANY · *Cleveland 1, Ohio, U. S. A.*
THE WHITE MOTOR COMPANY OF CANADA LIMITED · *Factory at Montreal*

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS



15 out of 18

of the National Bus Transportation Award Winners are DELUXE users!

1949 Winners

These are the winners in the 1949 National Bus Transportation Awards:

- St. Louis Public Service Co., St. Louis, Mo.
- The Connecticut Company, New Haven, Conn.
- Capital Transit Co., Washington, D. C.
- Atlantic Greyhound Corporation, Charlestown, W. Va.
- Houston Transit Company, Houston, Texas
- Teche Greyhound Lines, New Orleans, La.
- San Antonio Transit Company, San Antonio, Texas
- Harrisburg Railways Company, Harrisburg, Pa.
- Trenton Transit, Trenton, N. J.
- Dixie Greyhound Lines, Inc., Memphis, Tenn.
- Boston, Worcester & New York St. Ry. Co., Framingham, Mass.
- Portsmouth Transit Company, Portsmouth, Va.
- Charleston Transit Company, Charleston, W. Va.
- Johnson Bus Lines, Inc., Milford, Mass.
- The Dixie Traction Co., Inc., Covington, Ky.
- St. Joseph Light & Power Co., St. Joseph, Mo
- Bristol Traction Company, Bristol, Conn.
- Denver-Boulder Bus Co., Denver, Colorado

** The 15 out of 18 fleets starred are all or partially DeLuxe equipped.*

Again! DELUXE is the first choice of men who know their filters best!

Not only one year . . or two years . . . but *every* year, by an overwhelming majority, the winners of the National Bus Transportation Awards are DeLuxe Users. There must be a reason for such continued and predominating preference by the men who check filter costs and performance most closely. The reason is—DeLuxe Advantages and Improvements, not found in any other filter.

For instance, DeLuxe Cartridges have the Spring and Cone construction shown here; the supporting inner spring that won't sag and quickly become useless PLUS the inner metal cone that feeds oil the L-O-N-G way for thorough cleansing.

To get this actual cleansing effect you must have BOTH—this better cartridge INSIDE and the DeLuxe Filter OUTSIDE with its many advantages, such as the new Sedi-Sump.

DELUXE-BALDWIN CARTRIDGE

Now, the New DeLuxe-Baldwin Cartridge makes available to all popular makes of filters, the unique DeLuxe thorough cleansing effect.

DELUXE Oil Filter

R-4009 **DELUXE PRODUCTS CORPORATION, 1408 Lake Street, LaPorte, Indiana**

B.F.Goodrich

Flat tires cut from 4 per week to none in 4 months!

A typical example of B.F.Goodrich improvement in tires

IN THE bustling Fulton Fish Market area of New York, empty crates, boxes and barrels have to be burned right on the spot—usually in the streets. If they were not, mountains of such containers would soon grow to choke streets and block vital traffic. But these fires cause a deadly trap for tires (and truckers' schedules)—because box-nails, wire and strap iron soon litter pavements.

Four flats per week was the costly average for one firm, Cantalupo Carting Co., whose trucks operate right in the Fulton area. The Cantalupo brothers, owners of the firm, equipped their trucks with B. F. Goodrich Seal-o-matic safety tubes — *puncture-sealing tubes.* Result — no flats in four months. But they've pulled plenty of nails out of their tires!

BFG puncture-sealing tubes seal punctures as they occur. A special tube lining substance grips the nail or other puncturing object — prevents loss of air so there is no flat. And it's the same story when the puncturing object is removed. The sealant plugs the hole; again, no loss of air, no flat.

But that's only half of it with this revolutionary BFG product. Seal-o-matic tube walls are over 60% thicker than ordinary tube walls. So there's *far* less danger of blowouts from chafing or pinching. Also, Seal-o-matics fit your tires without stretch. Seal-o-matic safety tubes usually outlast two or more sets of tires!

Find out how BFG puncture-sealing Seal-o-matics can help you cut costs. See your B. F. Goodrich man now — or write, wire or phone: *The B.F.Goodrich Company, Akron, Ohio.*

FLEET OWNER, January, 1950, Vol. 44, No. 1. Published monthly by McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York 18, N. Y. Subscription rates—U. S. and U. S. Possessions, $1 for one year, $1.50 for two years, $2 for three years, 25¢ per copy. Canada $2 a year, $3 for two years, $4 for three years. Pan American countries $10 a year, $16 for two years, $20 for three years. All other countries $15 for one year, $25 for two years, $30 for three years. Address all communications about subscriptions to Director of Circulation, 330 W. 42nd St., New York 18, N. Y. Please indicate position and company connection on all subscription orders. Allow at least 10 days for change of address. Acceptance under the act of June 5th, 1934, authorized April 24th, 1941.

STRIKE THIS "TELLING BLOW": Hit *Marfak* hard! The fact that it doesn't splatter like ordinary grease tells you that heavy loads and rough roads won't hammer it out of spring shackles, tie rods and other chassis parts . . . proves that *Marfak* gives safer, longer-lasting protection with fewer applications.

LIGHTEN YOUR MAINTENANCE COST LOAD

Save 3 ways on chassis upkeep by using

TEXACO MARFAK
"More than 300 million pounds sold!"

PROTECT chassis bearings with *Texaco Marfak* and (1) *save parts replacements – Marfak* won't squeeze or jar out of bearings . . . gives full protection against wear and rust . . . lengthens life of parts; (2) *save lay-up time – Marfak* protection assures fewer repairs and overhauls . . . keeps vehicles on the job; (3) *save lubrication expense – Marfak* gives protection for extra hundreds of miles . . . fewer applications are needed.

For similar savings in wheel bearing maintenance, use *Texaco Marfak Heavy Duty*. It seals out dirt and moisture . . . seals in its protective lubricating film. Safer braking is assured. No seasonal change is required.

For engine maintenance economy, lubricate with *Texaco D-303 Motor Oil* – the fully detergent-dispersive oil that cleans as it lubricates. It assures better performance from heavy-duty gasoline and Diesel engines . . . keeps fuel consumption and upkeep costs low.

Let a Texaco Lubrication Engineer help you simplify and improve your maintenance lubrication procedures. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd St., New York 17, N. Y.

TUNE IN . . . TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

TEXACO

TEXACO

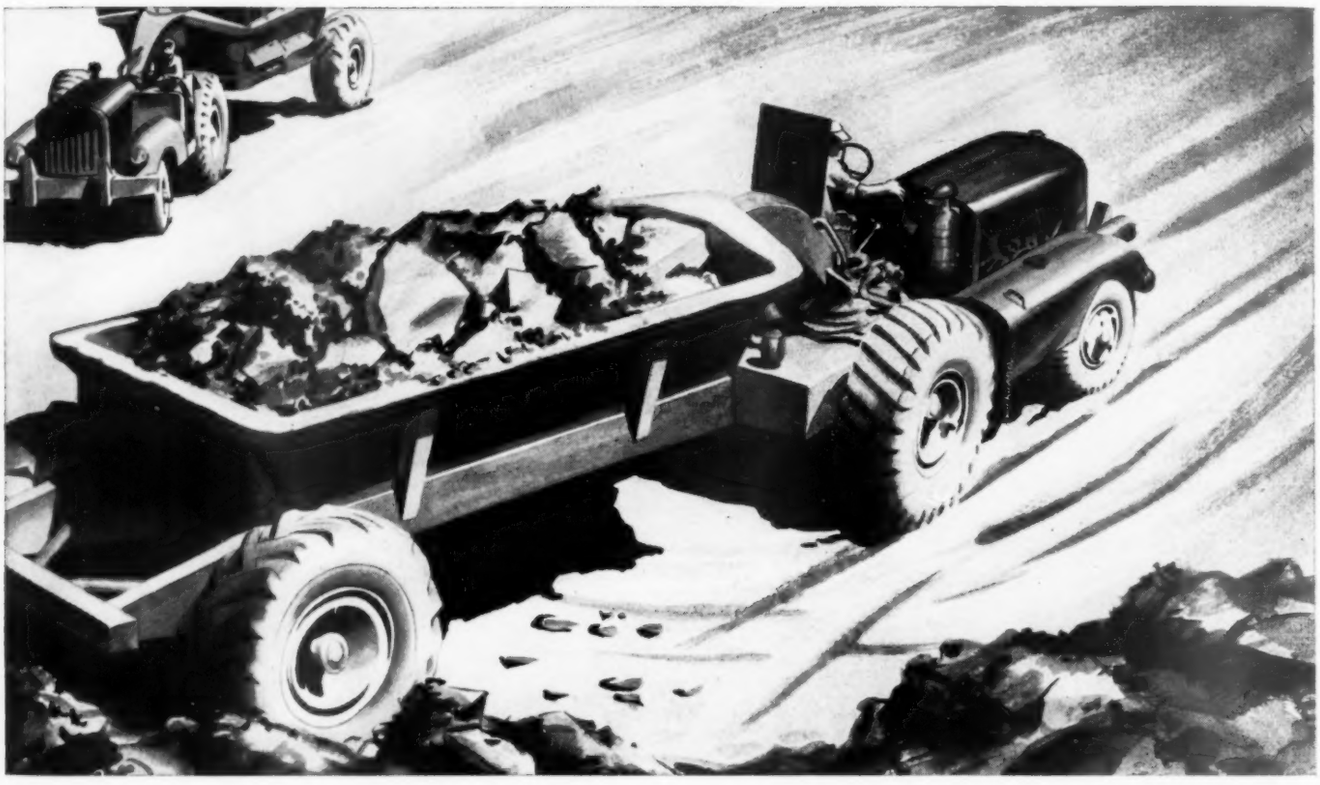
For further information on advertised products, use post-paid business reply card, page 72.

Lubricants and Fuels

FOR THE TRUCKING INDUSTRY

For further information on advertised products, use post-paid business reply card, page 72.

WHEN THE JOB IS *Tough*



ROSS BRINGS EASE . . . AND ECONOMY

IF YOU were at the wheel of this vehicle, you'd know that this is a tough job of steering. But, you would also know that you are able, with Ross Cam and Lever Steering Gear, to handle the job with ease and complete satisfaction. Whatever the steering job, whatever the road condition, rely on Ross for steering ease and economy.

The Ross policy of incorporating advancements in design as they are proved by exhaustive tests has resulted in many recent improvements. Current Ross models have:

(1) ***Increased mechanical reduction*** . . . (2) ***More compactness*** . . . (3) ***Reduction in weight*** . . . (4) ***Greater arm angular-travel*** . . . (5) ***Improved metallurgy*** . . . (6) ***Increased efficiency.***

Throughout 42 years of leadership in this industry, Ross gears have been distinguished for long life, simplicity of adjustment and maintenance of long-recognized qualities of safety, stability and performance. We invite discussion of any steering problem.

Ross

Cam & Lever **STEERING**

ROSS GEAR AND TOOL COMPANY • LAFAYETTE, INDIANA

For further information on advertised products, use post-paid business reply card, page 72.

the Standard AXLE ....

UNCONDITIONALLY

GUARANTEED

THROUGH THIS Danger Zone

Guarantee

WE WILL REPLACE NO-CHARGE FREIGHT PREPAID ANY STANDARD FORGE INSERTED SPINDLE TUBULAR AXLE BEAM RETURNED TO US PREPAID WHERE OUR INSPECTION FINDS THIS AXLE BEAM FRACTURED OR BROKEN AT ANY POINT BETWEEN OUTER END OF SPINDLE AND A POINT TWO INCHES FROM OUTER EDGE OF THE SPRING SEAT.

★ ★ ★

THIS GUARANTEE, MADE IRRESPECTIVE OF LOAD, SPEED OF OPERATION AND WITHOUT TIME LIMIT, IS BASED ON YEARS OF USAGE OF THE INSERTED TYPE SPINDLE SHOWN BELOW.

THIS CONSTRUCTION USED IN AXLES INTERCHANGING WITH AXLES OF OTHER TYPES OF SPINDLE CONSTRUCTION RESULTS IN STRENGTH FAR EXCEEDING STRENGTH AND CAPACITIES OF TIRES, BEARINGS AND BALANCE OF TRAILER UNIT. THUS, NO FAILURES OCCUR EXCEPT IN CASE OF DEFECTIVE MATERIALS.

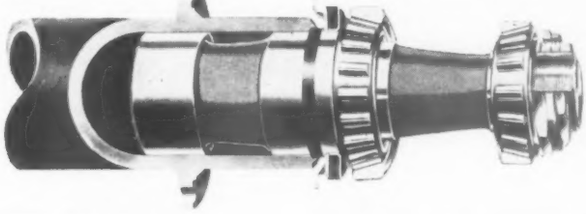
NO SUCH UNRESTRICTED GUARANTEE MADE ON THE BALANCE OF AXLE BETWEEN TWO LIMITING POINTS ABOVE DUE TO ABSENCE OF CONTROL OF MOUNTING CONSTRUCTION, CENTER OF SPRING SEATS AND WELDING OF ATTACHING PARTS WHICH VARY ACCORDING TO INDIVIDUAL SKILL AND DESIGN.

SOLID SPINDLES FORGED FROM ALLOY STEEL AND HEAT TREATED FOR GREATER STRENGTH.

HIGH CARBON SEAMLESS TUBING HEAT TREATED FOR ADDED STRENGTH — PREVENTS LOSS OF CAMBER.

SPINDLES PRESSED INTO MAIN TUBE BY TREMENDOUS HYDRAULIC PRESSURE — AXLE STRENGTH NOT DEPENDENT UPON A WELD.

INSERTED SPINDLE REINFORCES AXLE AT BRAKE FLANGE.



ADEQUATE BEARING SHOULDERS PROVIDED ON SOLID SPINDLE WITHOUT REDUCING STRENGTH AT A CRITICAL POINT.

SPINDLES GROUND TO CLOSER TOLERANCE THAN BEARINGS.

REQUEST YOUR TRAILER MANUFACTURER TO FURNISH STANDARD INSERTED SPINDLE AXLES ON YOUR NEW TRAILERS. AVAILABLE AT TRAILER MANUFACTURERS AND DISTRIBUTORS FOR REPLACEMENT AND CHANGE-OVER JOBS.

★ Standard TRAILER AXLES

Standard Forge & Axle Company Inc.

MONTGOMERY . ALABAMA

BRAKES FORGINGS TRAILER PARTS

Fleet Owner

In This Issue:

The public takes the truck for granted, yet when facts and figures are pulled together into a composite picture the industry comes into focus for its part in serving our nation in peace and in war and as one of the biggest employers of labor.

A new fruit season starts this month, and refrigerated trucks will be called on for an even bigger transportation job on frozen juice concentrates, now 25 percent of the market, on runs to northern and midwestern cities.

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Stanolube HD Motor Oil

After 4500 hours of heat, dust, and heavy loads

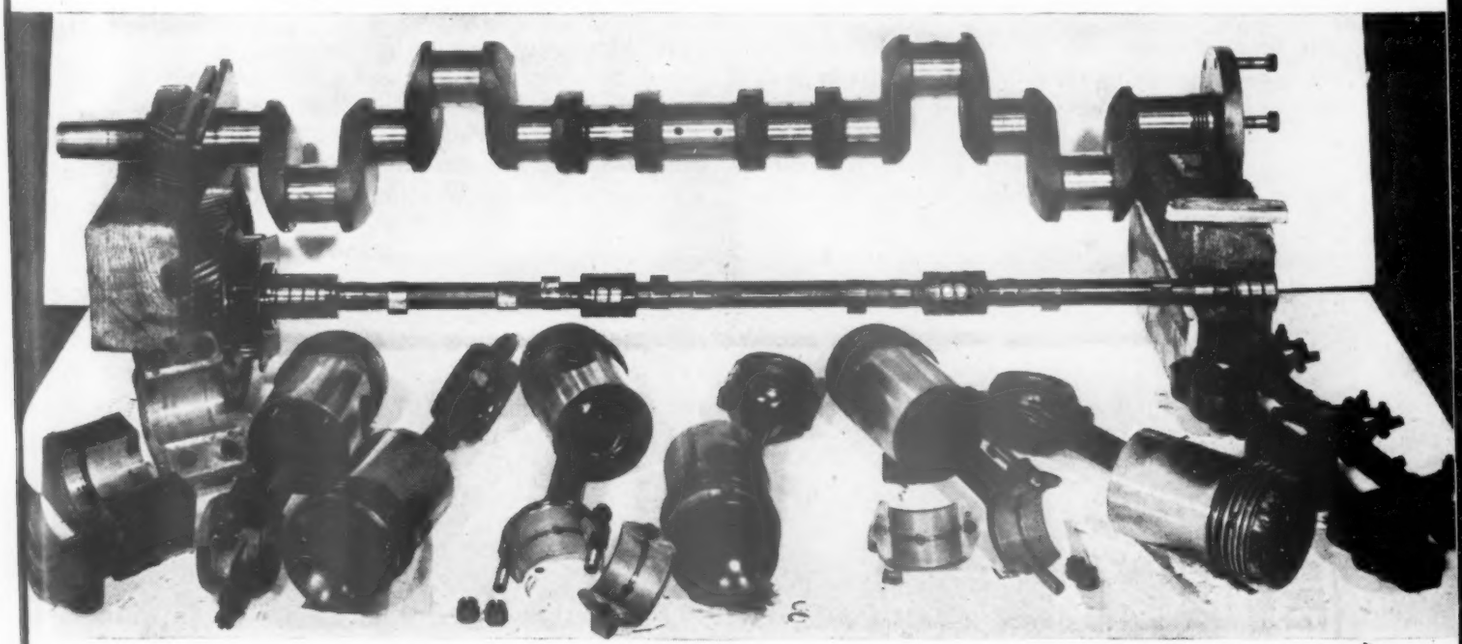
Engines look like this

● These vital Diesel engine parts have put in 4500 hours of hard work on dusty, hot, and heavy earth-moving jobs. The parts are shown just as they came from the engine. They are entirely free from deposits that would interfere with satisfactory operation, although they have not been cleaned.

Here's visible evidence of superior lubrication by Stanolube HD Motor Oil! The benefits of this clean and protective lubrication have meant important savings for the Central Construction Company, Indianola, Iowa. Each of 32 Diesel units—used by this company for grading and earth moving—has been operated for nearly 4500 hours during two seasons of work. *No overhauls have been required.* There has been no downtime due to lubrication troubles.

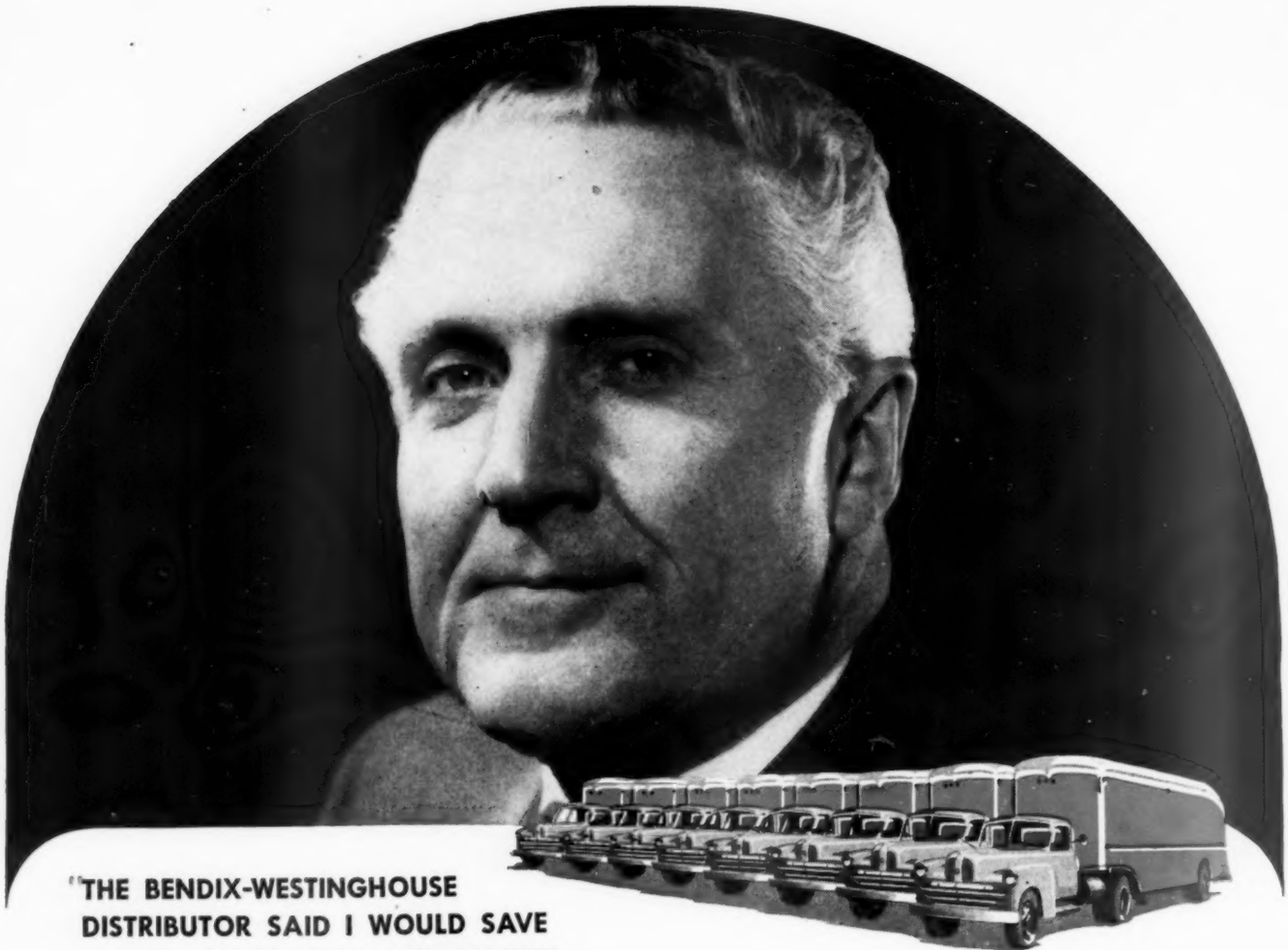
Consider the Stanolube HD benefits obtained by the Central Construction Company in the light of your own fleet operations. Under severest conditions of service, this heavy-duty lubricant will keep your fleet engines clean, free from corrosion, and protected against wear. A Standard Oil Automotive Engineer will help you make the most effective use of Stanolube HD.

Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.



STANDARD OIL COMPANY (INDIANA)

STANDARD



"THE BENDIX-WESTINGHOUSE DISTRIBUTOR SAID I WOULD SAVE MONEY ON BRAKE MAINTENANCE . . .

My Own Records Prove it!"

Big fleet operators keep accurate cost records on brake maintenance, replacement parts and down-time for servicing. Their comparisons prove beyond any doubt that substantial savings result when they specify Bendix-Westinghouse Air Brakes for every truck in their fleet. Moreover, drivers prefer the soft, cushioned, flexible stops, the extra vehicle control, the safety features of these mighty brakes. Whether you operate one truck or one hundred, be sure you get *all* these advantages by specifying Bendix-Westinghouse Air Brakes.

THE BEST BRAKE IS **AIR**

BENDIX-WESTINGHOUSE GENUINE AIR BRAKES

REG. U.S. PAT. OFF.

THE BEST AIR BRAKE IS

Bendix-Westinghouse

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY
ELYRIA, OHIO

For further information on advertised products, use post-paid business reply card, page 72.

Want super-traction plus super-mileage?

Now for the first time you can buy and specify *one* tire that combines super-safety with super-mileage — it's Goodyear's new Hi-Miler XTRA TRED!

Actual tests prove that the new Hi-Miler XTRA TRED gives you up to 60% more traction —up to 50% more mileage than other heavy-duty truck tires.

Super-traction, because the new Hi-Miler XTRA TRED has a flatter tread with zigzag grooves and notches to provide more and better road-gripping edges.

Super-mileage, because the new Hi-Miler XTRA TRED has as much as 50% deeper non-skid tread. Combining greater tread depth and flatter tread contour provides longer wear, better mileage, more puncture protection, extra value.

For slippery weather give your trucks better traction with Goodyear's new Hi-Miler XTRA TRED—available in either rayon cord or super-durable, heat-resistant nylon.

Ask your Goodyear dealer now for the new truck tire that gives you up to 60% more traction — 50% more mileage—Goodyear's new Hi-Miler XTRA TRED. Remember, always BUY and SPECIFY Goodyear — *it pays!*

THE HI-MILER ALL-WEATHER

For hauls where experience indicates that extra-tread tires should not be used, the Hi-Miler All-Weather is your best bet. A tough-traction tire with the world-famous Goodyear diamond tread. This time-proved non-skid design provides real road-gripping protection in slippery going.

THE ROAD LUG

Originally engineered for on- and off-the-road service, now a big favorite with many operators on regular highway hauls because it has deep non-skid tread for long wear—resistance to cutting and snagging—alternate long and short bars that dig in for traction.

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network

GOODYEAR

Hi-Miler, Xtra Tred, All-Weather, Road Lug—T.M.'s The Goodyear Tire & Rubber Company

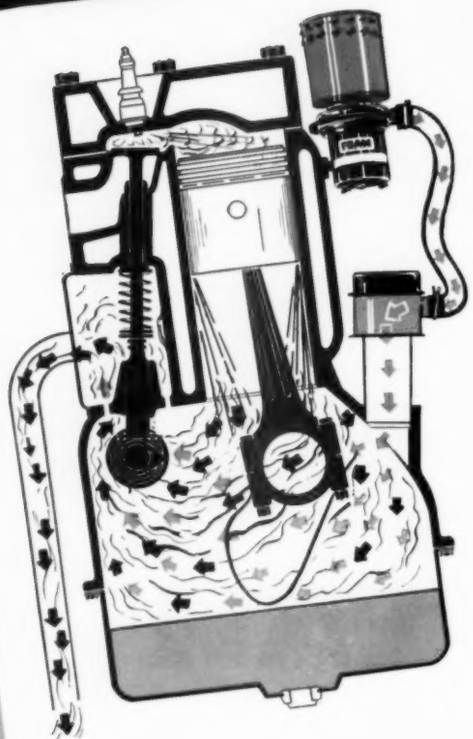
MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

FRAM'S FIRST

Fram Carburetor Air Filter removes harmful dust from air before it enters the intake. Uses completely new, more efficient method of filtration with low-cost replacement cartridge.

Fram Gasoline Filter removes water, rust, dirt and scale from gasoline. Protects finely adjusted modern carburetor mechanisms.

Famous Fram Oil & Motor Cleaner "cleans the oil that cleans the motor." Removes sludge and harmful corrosives manufactured inside engine. Provides clean oil lubrication. Assures longer engine life.



"FRAM POSITIVE CRANKCASE VENTILATOR Answered Our Prayers to STOP SLUDGE"

Fleet Operators report this amazing Fram Positive Crankcase Ventilator really licks sludge problems. It pays off particularly in cases of excessive contamination and sludge formation due to low-speed, cold-weather and stop-and-go driving. Saves engines, oil and oil filter cartridges by removing corrosive blow-by gases as they form . . . before they do their damage.

Here's How it Works

The upper half of the unit is an economical replacement cartridge that uses Fram-Tex filtering media to filter incoming air. The lower half is a Fram-developed electrically-driven blower that circulates clean, filtered air through the crankcase and out the road draft tube at a continuous, uniform rate . . . regardless of engine or vehicle speed. This clean air ventilation carries away corrosive blow-by gases as they form . . . before they contaminate the oil and form sludge, acids, corrosives. Gives you cleaner engines, lower costs.

with a positive check on

Oil and Cartridge Condition

THE SENSATIONAL FRAM

LUBRI-GRAF

STOP wasting time, cartridges, money! Here at last is a device that tells you when to change cartridges and gives you a visual record of your entire fleet. Obsoletes arbitrary mileage basis maintenance. It was invented by a fleet operator who brought it to Fram and now Fram is passing it on to *you*.

The Lubri-Graf is a handy chart on which you list your vehicles. Opposite each vehicle are 31 indicator spots so you can make a daily check for each month's operation. All you do is place daily sample of oil from dipstick in the proper indicator spot. If the oil obscures the color dot, it's time to change cartridge.

The Fram Lubri-Graf gives you visual proof of the operating efficiency of your engines. Shows you which ones are contaminating oil and eating up cartridges too fast. Forewarns before there's real trouble . . . spotlights vehicles due for overhauls. Saves you money, cartridges and down-time. Actually makes fleet maintenance paper work fun. Try it on your fleet.

FRAM CORPORATION, PROVIDENCE 16, R. I.
***In Canada:* J.C. Adams Co., Ltd., Toronto, Ontario**

r Complete Engine Protection

FRAM

OIL - AIR - FUEL

FILTERS

Send coupon for FREE Fram Lubri-Graf

Send coupon today for a genuine Fram Lubri-Graf absolutely FREE! Test it with your fleet and see what a great cost-cutting device it can be. Get complete details about how you can get a regular supply of Fram Lubri-Grafs and a specially designed metal stand to hold them. Just fill in and mail. There's no obligation. Do it NOW!

FRAM CORPORATION, Providence 16, R. I.
Gentlemen:
Please rush me FREE FRAM LUBRI-GRAF and complete details on how I can get a regular supply of them plus handy metal stand.

Name .....
Company .....
Address .....
.....
We operate ..... (number) ..... (type of vehicles)
We regularly purchase through .....
(name of automotive wholesaler)

YOU CAN BEAT & ABUSE

..COLE-HERSEE Switches

but you can't beat them for

Quality & Ruggedness, Performance & Dependability

No. 9044 **Push Button Dust-proofed Starter Switch**

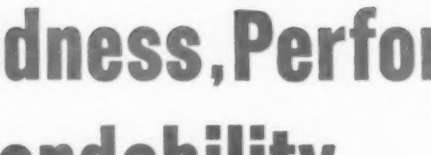
No. 5007 **Heavy Duty Switch**

No. 1180 **Trailer Connector Box and Grip-tite Cable Protector**

No. 5027 **Extra Heavy Duty Switch**

No. 6896 **Push-Pull Heater Switch**

No. 5050 **Extra Heavy Duty Switch with Circuit Breaker**



No. 7123 **Universal Heavy Duty Headlamp Switch**

No. 6887 **Push-Pull Heater Switch 12 volt**

COLE-HERSEE CO.

20 Old Colony Ave., Boston 27, Mass.

Manufacturers of

Headlamp Switches · Panel Switches · Plugs & Sockets · Door Switches · Starter Switches · Trailer Connectors · Push-Pull Switches · Pilot Lights · Heater Switches · Toggle Switches · Foglight Switches · Fuse Blocks

For further information on advertised products, use post-paid business reply card, page 72.

TRAILMOBILE Wins 4TH Straight "FIRST" in A.T.A. ROADEO!

FIRST PLACE
Ben Winterberger
Dohrn Transfer Co., St. Louis, Mo.

SECOND PLACE
Forrest Garrison
Melvin Trucking Co., Peoria, Ill.

Hats off to the superlative skill of Ben Winterberger of Dohrn Transfer Company who pulled a TRAILMOBILE to first place at the 1949 *National Truck Roadeo* with an impressive 368.375 points out of a possible 400. Crowding hard on the victor's heels came another TRAILMOBILE piloted by The Melvin Trucking Company star—Forrest Garrison. And so, for the fourth consecutive year, first place at the Roadeo has provided spectacular confirmation for TRAILMOBILE'S reputation as "the easiest pull in the industry."

CHAMPION ON THE HIGHWAY, TOO!

Less spectacular than Roadeo victories, but no less significant are the actual performance records of TRAILMOBILE owners everywhere. They prove that the same "easy pull" which wins Roadeos also facilitates maneuvering in close quarters—makes it easier for drivers to stick to tight schedules and maintain unblemished safety records at the same time.

ALSO ENDURANCE CHAMPION

What's more, every TRAILMOBILE is engineered to deliver more years of service—as well as more days of profit-earning service per year; less time in the shop—more time on the highway. And don't forget—customers report they can haul up to 4100 lbs. more payload per trip in the sensational new lightweight TRAILMOBILE!

AND ALL-AROUND ECONOMY CHAMPION

Count on the new TRAILMOBILE, too, for a new low in maintenance costs—not only less "time out" for overhaul but lower cost when overhaul finally does become necessary. Many TRAILMOBILE owners report substantial savings on fuel and tires as well as other economies due to TRAILMOBILE'S revolutionary achievements in modern trailer engineering. Find out what it can do for you . . . Mail the coupon today.

1949

First Place: Ben Winterberger
(*Right*) Dohrn Transfer Co., St. Louis, Mo. Score: 368.375 points out of a possible 400. Trailer—Model TA TRAILMOBILE.

Second Place: Forrest Garrison
Melvin Trucking Co., Peoria, Ill. Score: 359.9625 out of a possible 400. Trailer—Model TS TRAILMOBILE.

1948

First Place: Grayson C. Thomas
Associated Transport Co., Burlington, N. C. Score: 342.7 out of a possible 400. Trailer—Model TA TRAILMOBILE.

1947

First Place: C. W. Zimmerman
Cushman Motor Delivery Company, Chicago, Ill. Score: 380.5 out of a possible 400. Trailer—Model LP TRAILMOBILE.

1946

First Place: C. W. Zimmerman
Cushman Motor Delivery Co., Chicago, Ill. Score: 509.12. Trailer—Model LP TRAILMOBILE.

THE TRAILMOBILE COMPANY
Cincinnati 9, Ohio • Berkeley 2, California

MAIL THIS COUPON TODAY

THE TRAILMOBILE CO., Dept. FO-1
31st & Robertson, Cincinnati 9, Ohio

Please rush me complete descriptive information on the new lightweight TRAILMOBILE.

Name.....

Business Address.....

City.....*State*.....

My Position.....

For further information on advertised products, use post-paid business reply card, page 72.

LOOK FOR THIS BETTER WHEEL on the new Fruehauf Trailers . . .

Add 215 lbs. More Payload Capacity per Tandem-axle!

For Light, Strong Wheels . . . Insist on

ALUMINUM WHEELS Forged by Alcoa!

Now you can get light, strong aluminum spoke wheels—forged by Alcoa—on any Fruehauf Trailer. They're standard equipment on the Model SS trailers, optional on all others. You can get them as replacement wheels for your present Fruehauf rigs.

Fruehauf adopted aluminum wheels only after they had passed exhaustive road tests—only after Alcoa had completed the biggest development and engineering program ever devoted to aluminum truck and bus wheels. Now you get the benefits! Wheel weight is cut in half. That means fewer pounds to pound the road. Less road shock to batter springs, tires and chassis. Your aluminum wheels conduct heat fast, keep tires cooler. They resist corrosion, never need painting.

Best of all, the wheel weight you save goes straight into extra payload capacity. Ask your Fruehauf representative about the low cost of weight saving with aluminum wheels. Or call your nearby Alcoa sales office. ALUMINUM COMPANY OF AMERICA, 1871A Gulf Building, Pittsburgh 19, Pennsylvania.

NO PAINTING NEEDED!

SMOOTHER RIDE!

REDUCE UNSPRUNG WEIGHT!

EASIER TIRE CHANGING!

TIRES LAST LONGER!

ALCOA FIRST IN ALUMINUM

INGOT • SHEET & PLATE • SHAPES, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS
ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

DETROIT PUBLIC LIBRARY

NEW RPM DELO OILS
cut engine wear-rate up to 85%

New RPM DELO Lubricating Oils contain advanced, special compounding. Proved in actual operation, they keep engines cleaner, increase protection and extend overhaul periods of all heavy-duty engines.

Cut liner wear rate up to 85%. In service under extreme operation conditions, these new RPM DELO Oils reduced wear-rates up to 85% over conventional heavy-duty type lubricants.

Reduced engine deposits as much as 75%. Superior compounding in new RPM DELO Oils kept top-ring grooves, oil rings, and skirt areas of pistons remarkably clean in high-temperature, high-output truck and tractor engines.

Saved 40% to 60% on maintenance. Records show that new RPM DELO Oils cut maintenance costs as much as 60%, reduced oil consumption 30% to 50% over the long run.

Proved in full range of engine service. This new line covers normal to extremely severe conditions. The grade that meets your needs will double protection against lubrication failures, give you all-around better engine performance.

RPM DELO Heavy Duty Lubricating Oil
A new, high quality-level compounded oil recommended for heavy-duty diesel or gasoline engines in normal to difficult service. (Meets U. S. Army Specification 2-104B.)

RPM DELO Special Lubricating Oil
Companion product to RPM DELO Heavy Duty Lubricating Oil. Has higher viscosity index for special operating conditions. (Also meets U. S. Army Specification 2-104B.)

RPM DELO Supercharged—1 Lubricating Oil
An entirely new product of higher quality-level than the products above. Fortified with new, more powerful compounding. Recommended for severe and abnormal engine service. (Meets U. S. Army Specification 2-104B, Supplemental List No. 1.)

RPM DELO Supercharged—2 Lubricating Oil
Highest quality-level oil, designed for extremely severe operating conditions. (Meets U. S. Army Specification 2-104B, Supplemental List No. 2, also the rigid requirements of Caterpillar Tractor Company's Superior Lubricants—Series 2.)

Send for the full report on new RPM DELO Oils. Actual test data furnished free. For complete information and the name of your nearest Distributor, write to any of the companies listed below.

Standard Oil Company of California
225 Bush Street, San Francisco 20, Calif.

The California Oil Company
Barber, N.J., Chicago, New Orleans

Standard Oil Co. of Texas
El Paso, Texas

The California Company
17th and Stout Streets, Denver 1, Colo.

RPM DELO
LUBRICATING OILS

New and more Efficient Compounding keeps engines cleaner, increases protection, extends overhaul period

For further information on advertised products, use post-paid business reply card, page 72.

PATENTED

CORALOX

INSULATOR

Fleet operators are talking about *CORALOX*. For *CORALOX* has proved that it removes the major causes of spark plug troubles in commercial vehicle engines.

Most spark plug troubles are insulator troubles—fouling at low engine speeds and on down grades, misfiring under heavy loads, failure due to heat shock, accumulation of oxide coating.

CORALOX is AC's patented Insulator. As compared with the best previous ceramic insulators, *CORALOX* is 3 times as strong—has 4 times greater heat conductivity, 10 times greater electrical resistance at high operating temperatures, and it has no affinity for oxide coating.

AC's specially designed, "commercial" Spark Plugs, with *CORALOX* Insulator, will fire better, idle better, and last longer in *your* engines.

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

For further information on advertised products, use post-paid business reply card, page 72.

B-A-L-A-N-C-E

spells longer wear, fewer pull-ins!

With Grey-Rock Linings . . . *balanced* combinations of friction materials individually engineered to the needs of each vehicle . . . you're ahead two ways. Your books will show longer life, fewer adjustments and fewer relines . . . a big saving in maintenance costs! You also get smoother, safer brake action, which helps to keep your drivers happy. Standardize *now* on Grey-Rock Blocks for your heavy units, and Grey-Rock Balanced Trucksets for light and medium trucks.

GREY-ROCK DIVISION
of Raybestos-Manhattan, Inc.,
Manheim, Pa.

Only
Grey-Rock
has
Balanced Trucksets
for Light and Medium Trucks

RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Fan Belts • Radiator Hose • Packings
Mechanical Rubber Products • Rubber Covered Equipment • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

For further information on advertised products, use post-paid business reply card, page 72.

TURN **MORE** DEAD WEIGHT INTO PAYING FREIGHT WITH . . .

MAGNESIUM

A Magnesium Body added one ton to the payload of this truck

A dairy in Ohio replaced a steel van-type body with one made of magnesium. They found that this change cut 2000 lb. off the weight of the truck. As a result, one extra ton could be added to the vehicle's payload without exceeding gross weight restrictions. Operating profits went up because fewer trips were required to transport the same amount of milk.

This particular example furnished added proof of the strength and durability of magnesium truck bodies. The firm reported only minimum maintenance was required while hauling heavy loads over rough country roads.

A magnesium truck body is the lightest body you can buy and years of service have proved its ability to "take it". Cost records from many firms have shown that it pays to buy magnesium lightness when you buy a truck body.

For more information about magnesium truck bodies, or the name of a custom body builder in your vicinity, call the nearest Dow sales office or write direct.

Magnesium Division
THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Atlanta
Cleveland • Detroit • Chicago • St. Louis • Houston
San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Canada

The Lightest Truck Bodies Are Made of Magnesium

More Commercial
Vehicles Are Equipped
with Genuine MIRO-FLARE
Than All Other Reflector
Flares Combined
REASONS:
GREATER REFLECTING POWER (SIXTEEN CANDLEPOWER)
DURABLE LUCITE LENSES
HEAVIER CONSTRUCTION
STATE APPROVAL
HANDY RACK
FLEXIBLE FLAG . . folds in case
REASONABLY PRICED
NATIONALLY DISTRIBUTED
NATIONALLY ADVERTISED
ICC AUTHORIZED
FOR ALL COMMERCIAL VEHICLES
UL
MANUFACTURED BY
MIRO-FLEX COMPANY
1824 EAST SECOND STREET · WICHITA, KANSAS

PREVENTIVE MAINTENANCE

that travels with the truck...

wix

ENGINEERED FILTRATION

Engine trouble doesn't start in your repair shop. It starts *on the road*—and that's where WIX Engineered Filtration works for you! Over the longest, roughest haul, WIX protects engine performance by assuring CLEAN, engineered lubrication.

WIX uses the type of filtering material chosen by an overwhelming 85% of big-time Fleet Operators — selected cotton threads, skillfully blended and processed in the *exclusive* WIX way! These superior threads are precision packed to correct, uniform density under flawless electronic control. No "loose" spots . . . no "dead" spots . . . no channeling—but top filtering action all the way through! That's why WIX gives you money-saving extra hours of efficient oil filtration! Order engine-protecting, oil-preserving WIX Filterefils and high capacity WIX Filters from your Jobber NOW!

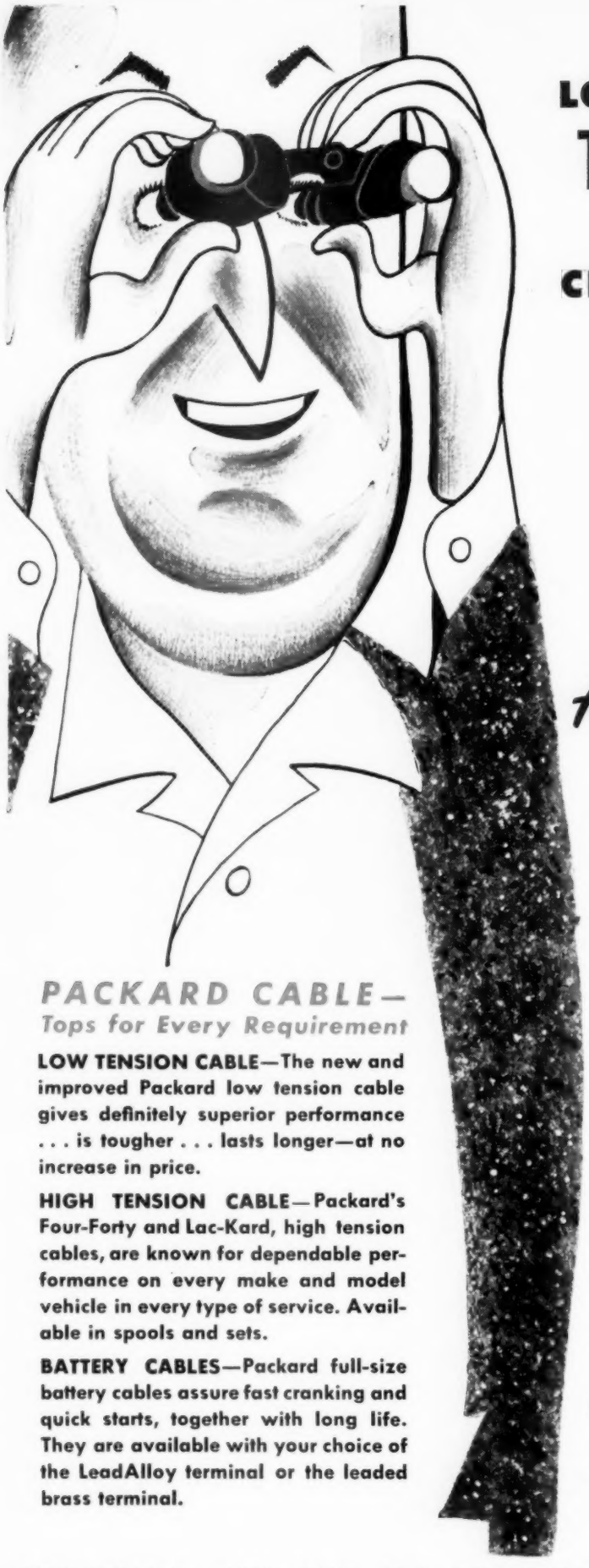
wix

TRADE MARK

FILTERS AND FILTEREFILS

WIX ACCESSORIES CORP'N • GASTONIA • N•C•

CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 11 Wabash Ave., Toronto 3, Ont.



LOOKING FOR THE TOP PERFORMER?

CHOOSE PACKARD AUTOMOTIVE CABLE

for all your wiring needs!

Packard automotive cable sets the standard by which all others are judged. It's engineered to do all jobs, and to do them better . . . to provide superior performance and outstanding economy on all vehicles under all conditions. Packard automotive cable permits complete wiring standardization . . . is used as original equipment on more cars, trucks and buses than any other make. For highest quality, for more miles per replacement, stock Packard automotive cable . . . the long-lasting cable that outranks all the rest!

PACKARD CABLE—
Tops for Every Requirement

LOW TENSION CABLE—The new and improved Packard low tension cable gives definitely superior performance . . . is tougher . . . lasts longer—at no increase in price.

HIGH TENSION CABLE—Packard's Four-Forty and Lac-Kard, high tension cables, are known for dependable performance on every make and model vehicle in every type of service. Available in spools and sets.

BATTERY CABLES—Packard full-size battery cables assure fast cranking and quick starts, together with long life. They are available with your choice of the LeadAlloy terminal or the leaded brass terminal.

Packard
REG U.S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio

FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

Here's the GREATEST MONEY-SAVER* EVER DEVELOPED FOR TRAILERS

* It's Fruehauf's Revolutionary Gravity-Tandem!
"With this unit you can convert your single-axle Trailer to a new Gravity-Tandem!"

Read How GRAVITY-TANDEM IS SAVING MONEY for these operators

SAVES TIRES

Mr. C. J. P. of Afton, Wyo., reports — "My records show 247,000 miles on our Gravity-Tandem *with four of the original tires on it.* These tires have never been recapped."

SAVES FUEL

Mr E. G. of Indianapolis, Ind. reports— "I'm actually amazed the way my Gravity-Tandem has cut gasoline consumption, speeded up my driving time."

EASIER ON TRACTOR

Mr. D W. R. of Aberdeen, Wash., reports—"We've pulled our Gravity-Tandem with various tractors. It pulls easier on every one of them . . . in fact, *one gear higher.*"

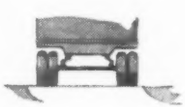
CUTS MAINTENANCE

Mr. H W R. of Akron, Ohio, reports —"My Gravity-Tandem job is now over 1½ years old. It handles fine, pulls easy and *hasn't cost me a nickel for other than preventive maintenance.*"

EASIER ON DRIVER

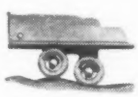
Mr. D. T. G. of Marion, Ohio, reports— "I can truthfully say my Gravity-Tandem is the easiest pulling tandem that has ever been back of my tractor."

The First Really New Idea in Tandem Springing . . .
And It's Exclusively Fruehauf!



TAKES CURVES BETTER

Wheels automatically follow the curves. Saves tires.



TAKES BUMPS BETTER

Wheels independently sprung — load rides level.

Entirely New Concept in Tandem-Trailer Springing. Utilizes torsion-bars . . . eliminates conventional leaf-type springs.

1. Distributes load equally on all tires.
2. Permits wheels to follow road contour.
3. Reduces tire scuffing through automatic self-trailing action of axles.
4. No wheel hop—brake torque cannot be transferred from one brake to another.

UP TO FIVE YEARS TO PAY

Qualified operators can have up to 5 years to pay—the best evidence you could ask for that Fruehaufs do last longer. Ask about our "pay as you earn" financing plans.

Outperforms Any Other Tandem On The Road

One Fruehauf Gravity-Tandem owner reports 247,000 miles on a set of tires without recapping.

Sure it's a phenomenal record! However, all over the country users are reporting double, triple, yes . . . even four times the tire mileage they got with conventional tandems. *But that's only part of the savings story.*

Gravity-Tandems are also making big fuel savings records, cutting maintenance costs to the bone, providing better braking and springing.

Ask any Fruehauf Gravity-Tandem user . . . he'll tell you it is the *greatest money-saver ever developed for Trailers.* If you haven't seen a Fruehauf Gravity-Tandem operate . . . you should. See your Fruehauf representative for a demonstration . . . or write us for the facts today. THE FRUEHAUF TRAILER COMPANY: DETROIT 32—LOS ANGELES 11. IN CANADA: WESTON, ONT.

FRUEHAUF *Trailers*

THE WORLD'S LARGEST BUILDERS OF TRUCK-TRAILERS

Special taxes paid by trucks last year for road building and maintenance alone equalled all the money spent by all the states for all the roads built in 1946—40,000 miles of them.

★

Hear Harrison Wood in "This Changing World"—every Sunday over ABC. Consult your Local Paper.

Largest Bus Transit System in South uses

CHAMPION EXCLUSIVELY!

Houston Transit Company Wins National Maintenance Award in 501 to 750 Bus Group

Superintendent of Equipment writes:

"Champion Spark Plugs are used exclusively in all gasoline buses in our fleet of 610 units and we feel that the Champion Spark Plug Company deserves a sincere word of praise from us. Your service men have been of great help to us by instructing our personnel in the correct installation and servicing of your spark plugs and we feel that Champion Spark Plugs played an important part in our efficiency record."

Sincerely yours,

Jess Adams

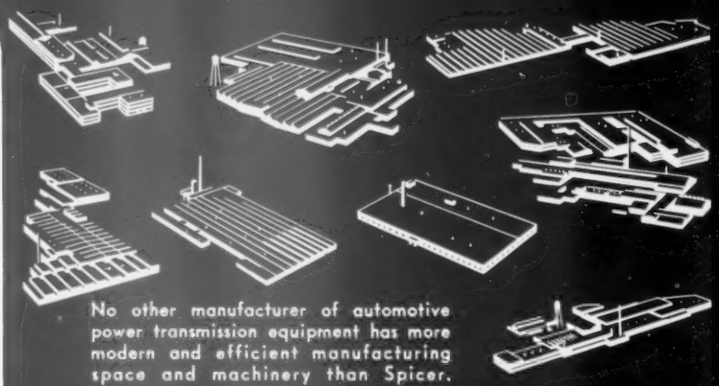
Supt. of Equipment

FOLLOW THE EXPERTS

SPECIFY DEPENDABLE CHAMPIONS FOR YOUR FLEET

Listen to the **CHAMPION ROLL CALL** *. . . Harry Wismer's fast sportscast every Friday night, over the ABC network*

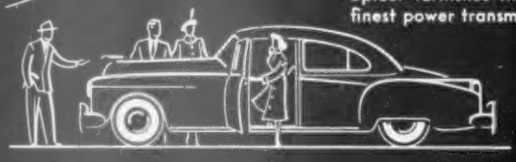
Spicer has the plants



No other manufacturer of automotive power transmission equipment has more modern and efficient manufacturing space and machinery than Spicer.

Spicer has the products

From the heaviest trucking requirements to the needs of sleek modern automobiles, Spicer furnishes the industry's finest power transmission units.



Spicer has the prestige

Clarence W. Spicer pioneered the Spicer organization in 1904, and each year Spicer pioneering achievements have kept this famous name foremost in the automotive world.

-to deliver the most "quick-and-comprehensive" service in the industry!

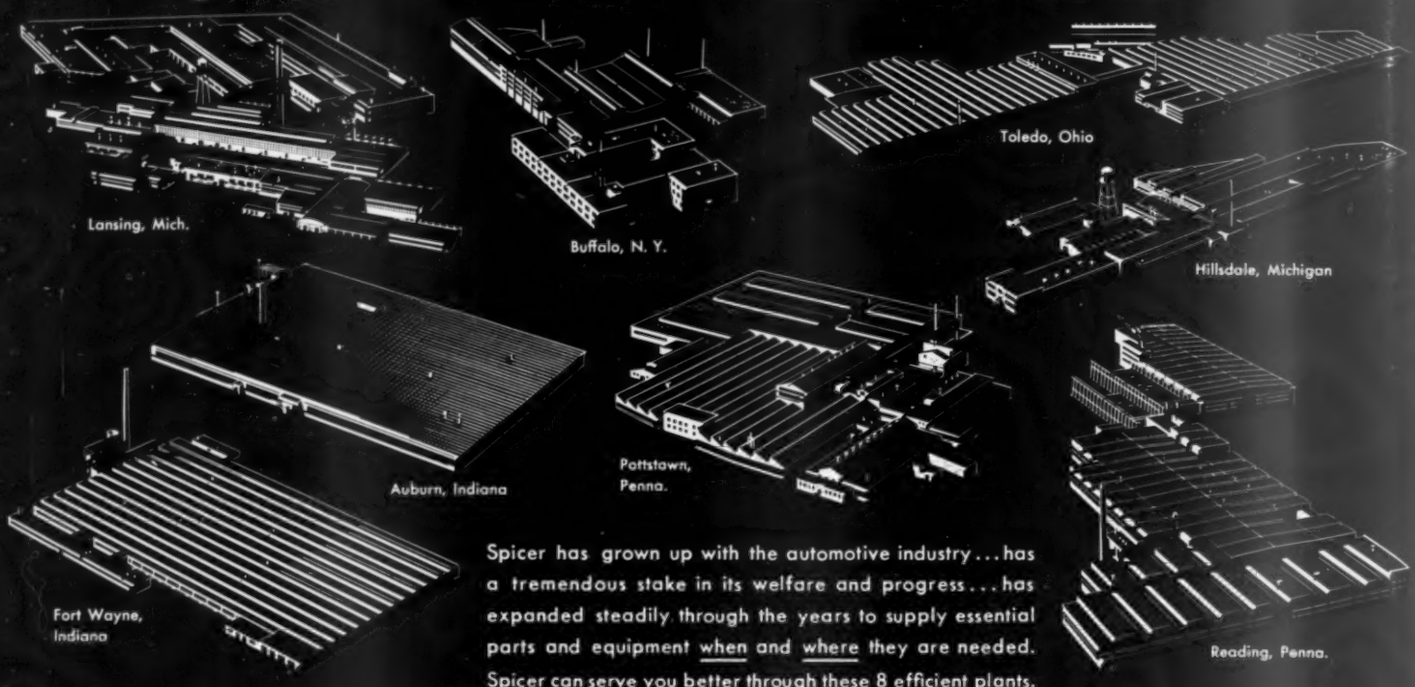
Nowhere else can you get the exceptional combinations of facilities made available to you by the internationally famous Spicer organization. Entrust your automotive power transmission problems to the nearly half-century experience of Spicer, and its modern large-production facilities.

Designing, Developing, Engineering, Manufacturing and Service

Spicer

TURN THE PAGE PLEASE

Spicer has eight great and modern production plants



Spicer has grown up with the automotive industry . . . has a tremendous stake in its welfare and progress . . . has expanded steadily through the years to supply essential parts and equipment when and where they are needed. Spicer can serve you better through these 8 efficient plants.

Spicer has the most complete range of power transmission products

Spicer ingenuity has developed the most comprehensive group of units of their type available from a single source. Spicer manufacturing excellence assures the dependable performance of this equipment. And Spicer management—long renowned for the strength and stability of its policies—assures the continuance of Spicer quality standards. Spicer can serve you more fully, completely, dependably!

Spicer engineering has set the standards for the industry

Nowhere in the nation is there assembled such an impressive group of specialized engineering talent as at Spicer. During the past 46 years, Spicer has worked hand in hand with the manufacturers of every type of automotive vehicle . . . employing every type of power . . . and using every power transmission principle. Look to Spicer for engineering assistance and manufacturing competence that will build greater prestige for your product.

46 YEARS OF Spicer SERVICE

TRANSMISSIONS
TORQUE CONVERTERS

SPICER MANUFACTURING
Division of Dana Corporation
TOLEDO 1, OHIO

PASSENGER CAR AXLES • CLUTCHES • PARISH FRAMES • STAMPINGS • FORGINGS • UNIVERSAL JOINTS
PROPELLER SHAFTS • SPICER "BROWN-LIPE" GEAR BOXES • RAILWAY GENERATOR DRIVES

YOU know from experience how maintenance costs went *UP* last Winter . . . how the heavy going through snow and slush took its toll in increased engine wear . . . how one heavy duty unit after another went into the shop for engine overhauls.

Don't let that happen again with your fleet this Winter. Change now to a motor oil that's TOUGH enough to take all the extra punishment that Winter driving offers. *Change now to VEEDOL 90 H.D.!*

VEEDOL 90 H.D. is the naturally *TOUGH* heavy duty oil that's refined from Bradford, Pennsylvania, crude—*finest "lube" crude in the world!* That's where VEEDOL 90 H.D. gets its famous "Fighting Film of Protection" that armors fast moving parts against the ravages of pressure, heat and wear. That's why VEEDOL 90 H.D. is the *TOUGH* heavy duty oil that can cut down wear this Winter and safely prolong the period between engine overhauls.

Veedol engineers go a step further, too, and blend scientific additives into inherently stable VEEDOL 90 H.D. to help give your fleet: (1) Full-throttle operation without ring sticking; (2) Top performance without bearing corrosion; and (3) High engine speeds without lacquering of valve stems and rings.

If you want to ease up on Winter repair problems in your fleet—want to get *more profitable miles* from every unit—make your next oil VEEDOL 90 H.D.

Remember, VEEDOL 90 H.D. is made *TOUGH* to make your Winter maintenance *easier!*

VEEDOL

90 H.D. MOTOR OIL

CLEANS AS YOU DRIVE

100% Bradford, Pennsylvania, Crude

VEEDOL
OILS AND GREASES

FEDERAL TIRES
"GOOD FOR A LONG SAFE RIDE"

FULLY DETERGENT
Keeps engine clean by minimizing sludge and lacquer formation; keeps rings and valves free.

FULLY DISPERSIVE
Acts to keep sludge, lacquer and particles of soot in suspension, so they're actually drained off with the oil.

ANTI-CORROSIVE
The presence of the additives in the oil assures protection against corrosion for the newer alloy bearing used in heavy-duty vehicles.

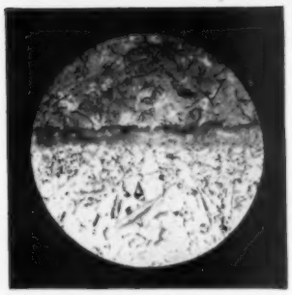
TIDE WATER ASSOCIATED OIL COMPANY

17 Battery Place, New York 4, N.Y.
Thompson Building, Tulsa 2, Okla.
79 New Montgomery Street
San Francisco 20, Calif.

Eliminate THOSE COSTLY ROADSIDE ENGINE FAILURES

DUALOY*

THE BI-METALLIC MOLECULAR BONDED PISTON



Photomicrograph of Bi-metallic Molecular Bond

Enlarged Cutaway of Ni-resist Ring Groove

*Trade Mark Registered.
The manufacturers of Silv-o-lite have been licensed by Fairchild Engine & Airplane Corporation to use the Al-Fin process in the manufacture of bi-metallic molecular bonded pistons.

IF YOU ARE INTERESTED IN REDUCING YOUR OPERATING COSTS . . .

you can do so with DUALOY* pistons, the new and revolutionary development that fortifies the top ring carrier against excessive wear.

DUALOYS* are built for heavy duty . . . in trucks, busses, tractors . . . wherever the going is tough and the hours long.

DUALOY* pistons now in operation have outlived the hours of operation that have heretofore been accepted as piston-life expectancy.

You can eliminate costly roadside engine failures and shop overhauls due to top ring failures IF your gasoline and diesel heavy duty jobs are equipped with DUALOY*, the bi-metallic molecular bonded piston with the built-in, wear-proof top ring carrier.

Silv-o-lite has the most complete line of passenger car and heavy duty pistons available. Heavy duty types are available with or without DUALOY*, according to your requirements for top ring land protection.

● *Better Pistons Since 1922*

UNITED ENGINE AND MACHINE COMPANY

310 PREDA STREET · SAN LEANDRO, CALIFORNIA

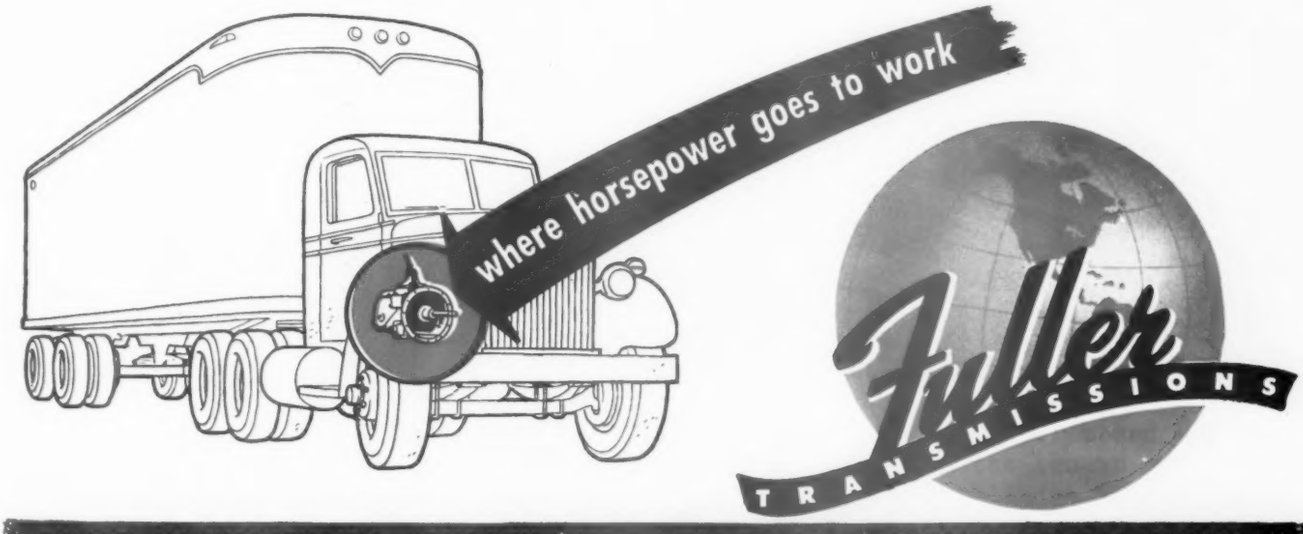
with the *RIGHT* gear ratios

Sure, it takes *horsepower* to pull a heavy load up a steep grade, whether it is on the highway or off. But don't overlook the part your gear box must play in delivering that horsepower to the wheels. It's in the transmission that the horsepower goes to work.

Only a transmission with exactly the right gear ratios for your particular operating conditions will permit most effective use of your engine's horsepower at all times. That means faster, more economical hauling.

Take advantage of the wide range of gear ratios you can select from the complete line of Fuller Heavy-Duty Transmissions and Auxiliaries.

There is one combination that is exactly right for your requirements . . . that gives you all the *added* advantages of Fuller's easy shifting and long, long wear-life. Write today for Fuller's 12-page catalog.



FULLER MANUFACTURING COMPANY (Transmission Division), **KALAMAZOO 13F, MICHIGAN**

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.

For further information on advertised products, use post-paid business reply card, page 72.

DRAMATIC PROOF

THAT BLACKHAWK JACKS ARE

YOUR BEST BUY

FOR 19 YEARS STRAIGHT

The Vast Majority of "Maintenance Efficiency" Winners Used Blackhawk Jacks

Again, in 1949, Blackhawk Jacks are the top choice among the majority of shops winning "Bus Transportation's" famous "M-E" awards for maintenance efficiency! Proof, again, that you get *all* the jack you pay for when you buy a Blackhawk . . . *they're that much better!*

A policy of buying the *best* equipment is a big step toward such efficiency in *any* fleet. Take the tip . . . buy Blackhawks from your jobber.

BLACKHAWK MFG. CO., Milwaukee 1, Wis.

Yes, the "Maintenance Efficiency" awards are one more big reason why Blackhawk Jacks rightfully carry this "Service Proved" Seal.

BLACKHAWK®

HYDRAULIC JACKS • WRENCHES • "RECK-RACK" • "PORTO-POWER"

For further information on advertised products, use post-paid business reply card, page 72.

Truck Trends

What! A National Teamsters Bargaining Pattern?

A nationwide strike of truck drivers in support of some local labor unions' demands loomed, some fleet owners thought, when officers of the AFL Teamsters Union late in November forced members of the Ohio Over-the-Road Employers Association to accept the same contract for long distance drivers as in force in the eleven state area comprising the Central States Drivers Council.

Union members were pressured into line by the threat that the local's charter would be cancelled and an administrator appointed to take over.

This capitulation of the Ohio Teamsters Union was viewed as another link in the chain which might eventually bind all local teamsters union locals into a national pattern.

. . . and Up Jumped the Rails!

In a surprise move late in December the ICC reopened the Burlington Mills case, involving the status of that large textile concern as a highway transporter of its products in its own trucks. Eastern railroads, among other things, insist that Burlington's truck operations have nothing to do with its primary business. The "surprise" in the situation is that ICC Division 5 "investigated" Burlington on what appeared to be a "fishing expedition" to set up a test case....later quit the proceedings on a stipulation of facts by both sides and gave Burlington a clean bill of health as a "private carrier." That was during the time when the two leading test cases, Lenoir and Schenley, were pending. The latter cases finally went to argument before the entire Commission and resulted in a smashing defeat for the same rail interests and others that are now responsible for reopening the Burlington Mills case.

Teamsters Get "Leg Up" On T-H Boycott Rule

A means of getting around the secondary boycott ban of the Taft-Hartley Labor Law has been handed the AFL Teamsters by a decision of the National Labor Relations Board. Until and unless it is upset by the courts, the technique sanctioned by the Board is expected to be used widely by the teamsters in harassing trucking firms with which it has a grievance.

What the ruling boils down to is this:

If the union pickets the truck of a company with which it has a dispute, that is "primary action" against the company even though the picketing occurs in front of a store receiving deliveries and has the effect of discouraging the store from doing business with the trucking outfit.

Picketing of the store for that purpose would be a clear secondary boycott illegal under Taft-Hartley and subject to injunction.

NLRB Chairman Paul M. Herzog and two other board members said in a majority opinion that picketing the trucks was the logical means available to the union to publicize its dispute

because its members had worked on the trucks and, besides, the company had no other facilities in New York the union could picket.

It's Navy Pier, 1950

Another Automotive Service Industries Show, Dec. 4-8, 1950, on Chicago's Navy Pier! Joint operating organizations -- Motor and Equipment Manufacturers Association, National Standard Parts Association, Motor and Equipment Wholesalers Association.

One of the world's largest booth shows, the A.S.I. is expected to jam the miles of aisles of Navy Pier with millions of dollars worth of automotive industries' stand-out offerings in replacement parts, shop equipment, accessories and materials of those billion dollar industries devoted to the job of helping keep the trucks and passenger cars "rollin'."

They'll Do a Little "Jobbing" on the Side

General Motors late in 1949 moved to attract a greater share of the replacement parts market created by approximately 16,318,000 GM automotive vehicle users. The bait....an overriding wholesale discount to GM car and truck dealers and distributors on parts they sell at wholesale. This makes GM dealers and distributors "jobbers" to independent garages that repair a considerable number of GM vehicles. W. F. Hufstader, GM's vice president in charge of distribution, says this should increase the distribution of General Motors factory engineered parts to independents.

AMA "Pops" a Vest Button

Lusty, dynamic automotive industry's spokesman, the AMA, looking over its shoulder late in December, popped a button off its vest as production entered 1950 "in stride."

AMA saw:

Most stabilized operations in its history....production at a fast pace throughout the year....sales right on the heels of production....employees working longer, steadier, and paid more than ever before.

1949 estimated production of 5,075,000 passenger cars and 1,125,000 motor trucks and buses -- up 17 percent over 1948....15 percent ahead of 1929's previous record. Truck and bus production 46 percent above 1929, but 18 percent below 1948's peak.

Year-end vehicle registrations, 43.9 million, breaks down this way: 35.7 million passenger cars, 8 million trucks, over 200,000 buses.

Total NEW truck registrations (1949) should end up just short of a million, says R. L. Polk & Co.

Hourly rates, weekly, and annual payrolls established new highs. 1949 production workers in vehicle body and parts plants, 656,000; annual payroll, $2,241,000,000.... $114,000,000 over 1948....$607,000,000 over 1941.

Most automotive industry brass think 1950 production will equal or top 1949.

ICC Prescribes C.O.D. Rules

ICC has prescribed four general rules governing handling of C.O.D. shipments and collections by motor carriers.

Rule one: Applicability. Rules and regulations apply to distribution of C.O.D. shipments by all common carriers except that which is auxiliary or supplemental to transportation by rail and performed on rail bills of lading. Also excepted -- transportation performed for freight forwarders on freight forwarder bills of lading.

Rule two: Tariff requirements. No common carrier of property to render any C.O.D. service unless such carrier has published, posted, and filed tariffs which contain the rates, charges, and rules governing such services.

Rule three: Remittance. Common carrier of property shall remit each C.O.D. collection directly to consignor within ten days after delivery of C.O.D. shipment to consignee.

Rule four: Records. Common carriers handling C.O.D. shipments as delivering carrier to maintain records of all C.O.D. shipments, showing (a) number and date of freight bill (b) name and address of shipper (c) name and address of consignee (d) date shipment delivered (e) amount of C.O.D. (f) date collected by delivering carrier (g) date remitted to payee (h) check number or other identification of remittance.

5 For ATA Executive Committee to Ponder—

Here are five topics on the agenda for the meeting of the Executive Committee of ATA, Feb. 1, 2, and 3.

1. Consider definition of areas to be considered exempt from Inter-state Commerce Commission regulations on transport incidental to carriage by air. A recommendation from the Air Cargo Committee of ATA concludes that the area to be exempt should be the commercial zone as outlined by ICC.

2. Consider recommendation to seek amendment to the Internal Revenue Code so that motor carriers could set up a reserve to cover loss and damage claims.

3. Discuss the present system used by manufacturers in rating capacity and gross vehicle weight of trucks.

4. Consider recommendation on changes in Roadeo rules -- forwarded by the ATA National Truck Roadeo Committee. This came up in work between the Roadeo and truck manufacturers' committees.

5. Consider policy on ATA conventions. Main consideration here is the size of the convention, which in the past has been restricted. Now there is a question whether the conventions should be held where there is more room, and allow larger gathering.

Sawyer Says Study "Subsidy," et al.

Trucking industry can stop worrying about what "recommendations" are contained in the Commerce Department report to the President on the problems of governmental regulation of transportation.

The report, which was sent to the President Dec. 1, was a compilation of the problems government faces in

administering various transportation policies. The only concrete recommendations made in the report were for further study of the various problems outlined. There were no suggestions on policy changes, or integration of transportation administration.

Important, however, are the subjects the report outlines for further study. These include the whole matter of governmental subsidization of transportation, the question of the equity of transportation agencies that are, or are not, subsidized, and the various suggestions which have been made concerning integration of transportation policy within the administration.

Excise Tax Reduction, "Looking Up!"

Congress is almost certain to do something about taxes on transportation in 1950.

Sentiment for cut-backs on all excises has been building up for some time now. Businessmen -- and many Congressmen, too -- have been quick to point out the braking effects these taxes have had on already-depressed sales.

And now the American Federation of Labor has come out for reduction or elimination of these levies. Its motives: more work -- and lower prices -- for union men.

Reason: the tax on freight is cumulative. It may be levied several times on the same item as it moves from mine or field to processing plant to wholesaler and then to retailer. The result is that excises may add as much as 15 percent to the final cost of practically any products -- not just the 3 percent for which the tax nominally calls.

The only possible stumbling-block: Congressmen, who insist on consideration of their pet repealers. If log-rolling develops, the Administration may decide to drop the whole idea of excise cuts rather than open the door to blanket removal of all.

Highways vs. Heavy Trucks

A continuing study of highway problems caused by heavy truck traffic will be undertaken by a newly-organized Inter-Regional Council on Highway Transportation.

The council was set up in Columbus, Ohio, last month, at a meeting of highway officials from 14 states called together by Ohio's Gov. Frank J. Lausche to discuss uniform state laws for regulating the weight of big trucks.

Chief accomplishment of the meeting was appointment of a committee to hold road tests to determine the amount of damage to highways by heavily loaded trucks. Albert S. Gordon, executive assistant to the chairman of the Maryland State Highway Commission, was named chairman of the committee.

The committee was instructed to compile a report by Feb. 1. Its other members are V. J. Clover, Illinois; N. F. Johnson, Kentucky; E. L. Schmidt, Pennsylvania; and T. J. Kauer, Ohio Highway Director and chairman of the council.

1½-ton shown with 12-foot closed van body—2-ton model also available

Studebaker trucks are winning thousands of new friends throughout the nation

Value-wise buyers rate Studebaker trucks out ahead in economy and comfort

Hefty loads or small—Studebaker trucks haul them all! Studebaker trucks have extra strong frames, springs, axles. Studebaker's Econ-o-miser engine powers the ½, ¾ and 1 ton models. The 1½ and 2 ton trucks—called series 16A and 17A—have a high torque "Power Plus" engine.

AMERICA'S truck operators have emphatically put themselves on record in favor of the revolutionary design and performance of Studebaker trucks.

All through last year, and continuing into this year, the stand-up stamina, the stand-out pulling power and the amazing operating economy of Studebaker trucks have been scoring a new high in popularity.

New comfort for truck drivers

The husky, handsome Studebaker trucks give drivers an easier working day, thanks to roomy, full-comfort, big-vision cabs.

The Studebaker cab floor is conveniently low—requires no strenuous climbing. The cab steps are weather-protected—enclosed inside the doors. The doors have tight-gripping rotary latches and they swing wide on automatic "hold-open" stops.

Studebaker's variable-ratio steering builds up welcome extra leverage for turn-arounds and parking.

Servicing a Studebaker truck—on the road or in the garage—is simplicity itself, thanks to a new kind of "lift-the-hood" accessibility to engine, ignition and instrument panel wiring.

Step into a Studebaker showroom first chance you have. See for yourself the solid value that's selling Studebaker trucks sensationally.

STUDEBAKER TRUCKS

NOTED FOR LOW COST OPERATION

© The Studebaker Corp'n, South Bend 27, Indiana, U. S. A.

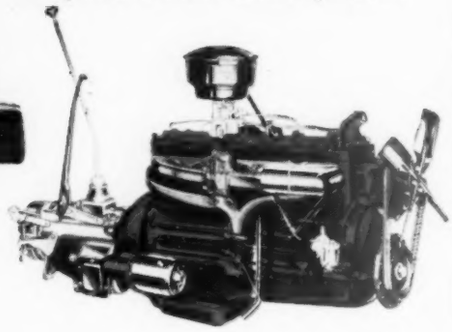
NOW! The most powerful 6-cylinder Ford Truck ever built!

New ROUGE **254** SIX

ENGINE

FOR THE HEAVY DUTY F-6

Thoroughly Proved in Industrial Engine and Motor Coach Operation



In Ford Series F-6—110 Horsepower, 212 lbs.-ft. Torque
In Ford Series F-6 COE—106 Horsepower, 210 lbs.-ft. Torque

New Ford 110-H.P. engine plus new 4-speed Synchro-Silent transmission make Series F-6 the standout performer in its class!

THE BRAND NEW Rouge 254 Truck Six gives you new power, new performance in the heavy-duty field.

This 254 cu. in. powerhouse gives you the latest engineering ideas. Free-turn, self-cleaning exhaust valves, faced with durable cobalt-chrome alloy. High-lift camshaft for increased valve opening. Chrome-plated top piston ring for longer cylinder wall life.

You get these and many other new features in the new "Rouge 254" available in Ford Model F-6. You get power that makes the F-6 the most powerful 6-cylinder Ford Truck ever built. You get the brand new 4-speed Synchro-Silent transmission. You get Bonus* Built construction which means big reserves of strength and power. See your Ford Dealer. Get all the facts about the new "Rouge 254," the fourth in a great line of Ford Truck engines.

*BONUS: *"Something given in addition to what is usual or strictly due"—Webster*

THE NEW FORD 254 ENGINE gives you all these modern design features!

CHROME-PLATED top piston ring for better lubrication, longer cylinder life.

AUTOTHERMIC aluminum alloy pistons with solid skirt. Steel strut controls piston to wall clearance.

HIGH-LIFT camshaft for increased valve opening, greater power.

FREE-TURN exhaust valves. Self-cleaning, better seating, longer-lived.

COBALT-CHROME faced exhaust valves for hard contact surface giving longer wear.

HIGH-TURBULENCE Power Dome combustion chambers for more power, greater economy.

Ford Trucks Cost Less because

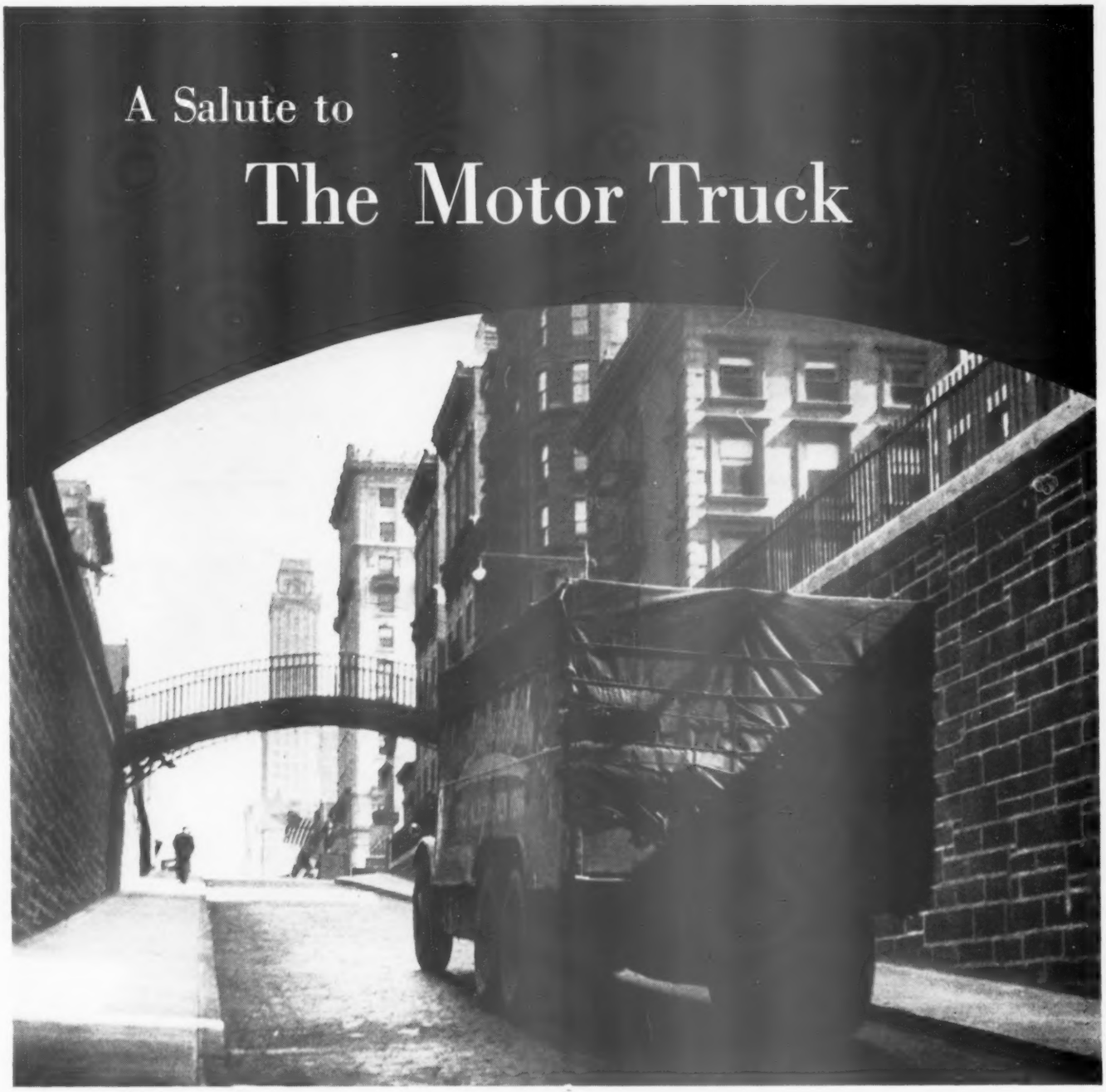
FORD TRUCKS LAST LONGER

Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford Trucks last longer!

For further information on advertised products, use post-paid business reply card, page 72.

A Salute to

The Motor Truck



★ Work Horse of Agriculture

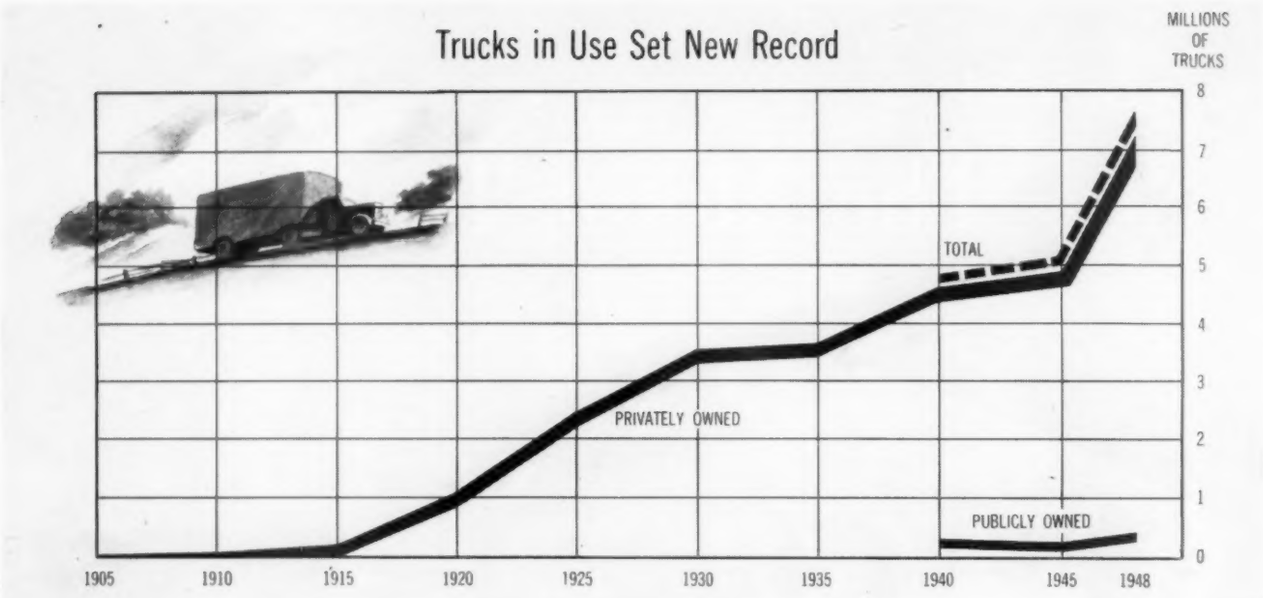
★ Tool of Industry

★ Builder of Highways

★ Liberator of Shipper and Consumer

★ Defender of Liberty in War and Peace

Its Impact on the American Way of Life



AMAZING GROWTH of the trucking industry is indicative of its important contribution to industry in peace and war.

Trucks Contribute to a Stronger, More Prosperous America

As the Twentieth Century moves past the half-way mark, one great contribution which is assured of a place in the history of a mankind has already been recorded: the revolution in transportation.

Curiously enough, most people, including many leaders of public opinion, have not understood or appreciated the revolutionary contribution of the car and truck to our economy. Only now, for example, are leaders in older forms of transportation beginning to understand: that the truck has come of age, that no artificial restraints can contain this expanding giant, that truck transport has moved from a scattered collection of miscellaneous vehicles into a compact and orderly system of transport.

Railroads and waterways figured predominantly in the early development of this country. They did a magnificent job. They are still the world's most remarkable wholesalers of transportation. But they are bound physically to strips of steel and to watercourses.

The advent of the highway age saw the old trade routes paralleled by faster and often more efficient carriers. Trucks can and do go anywhere on the 3,200,000 miles of America's street and highway system.

Zooming upward in number from point zero just before the turn of the century to almost 8,000,000 today, the motor truck has made itself so indispensable that approximately two-thirds of the tonnage hauled in the nation moves by truck. Even before World War II, the ODT estimated that of the nine billion tons of freight moving in a domestic commerce, five billions were hauled in local service, virtually all by truck; while of the remaining four billion in intercity service, trucks were hauling one-sixth. The trend has continued as the number of trucks mounted from just under five millions in 1941, period covered by ODT figures, to just under eight million in 1949.

What's Behind This Bean-Stalk Growth?

In 1899 American inventive genius had harnessed the internal combustion engine to the "horseless carriage." By 1900, many persons had reasoned that any vehicle which hauled people faster could haul property faster, too, and the truck was born. It grew slowly, largely because of poor roads and mechanical ineptitude, but by 1916 there were a quarter-million trucks operating, mostly in cities.

As the car-using public grew in number, the demand for better roads developed. More and more mileage of hard-surfaced road was added to the national system, overlaying the old trails and roadways. Despite the growth of the good roads movement, the railroads remained virtually a transportation monopoly until about 1916.

World War I marked the turning point in truck

transportation. The vast movement of men and materials placed an unprecedented strain upon existing transportation facilities and the rails broke down. The government took them over and urged the use of motor trucks to supplement rail service wherever possible. For the first time, in any appreciable volume, the trucks rolled out of the cities and onto the open road in intercity traffic.

Success of the operation opened the eyes of shippers to the possibilities of over-the-road truck service. Coincidentally, this mushrooming interest was paralleled by development of the pneumatic tire which cut down dead weight and increased carrying capacity.

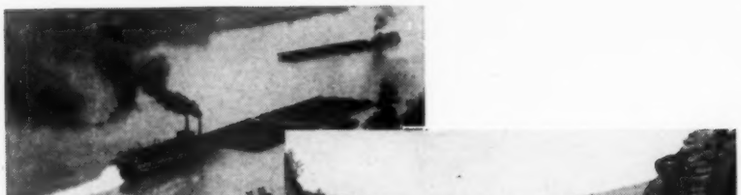
Today we realize that the trucking industry, as we know it now, was born in the early twenties.

What Can Trucks Do?

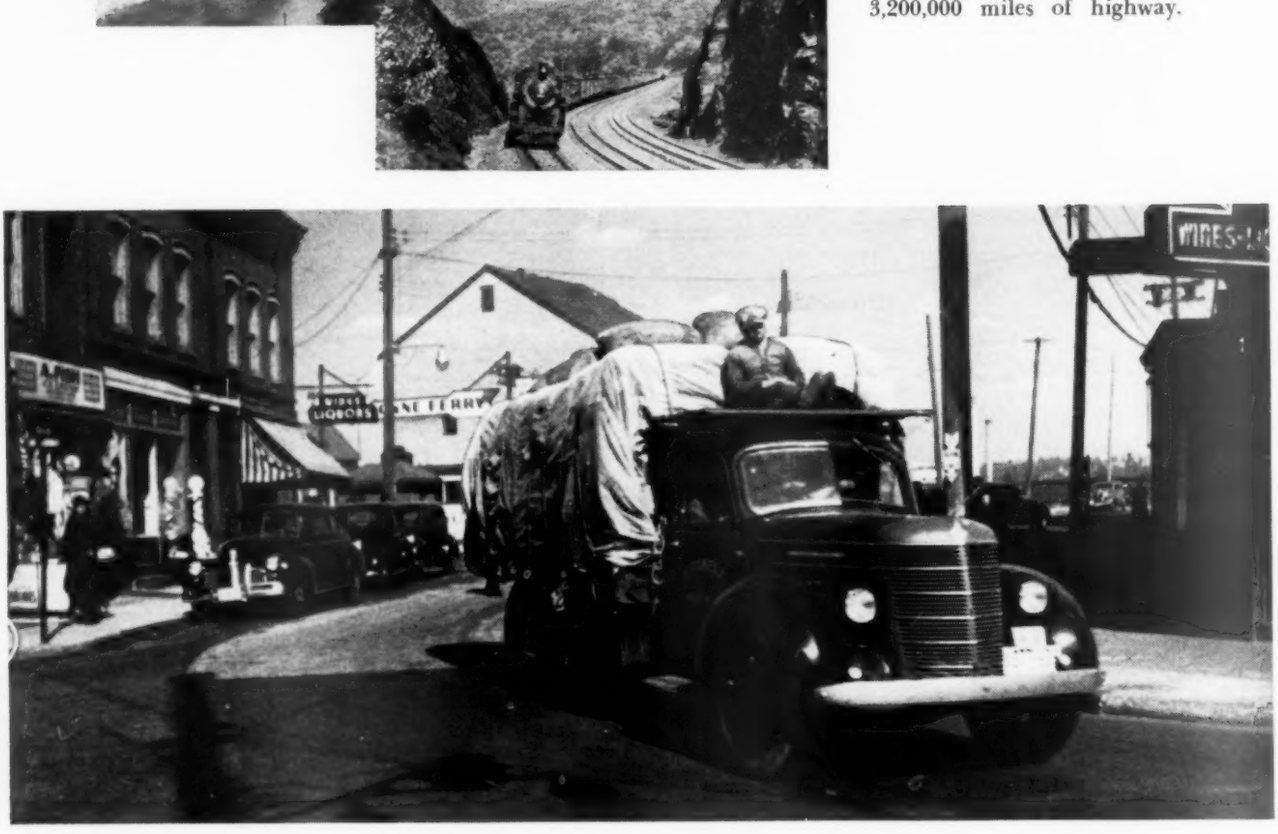
Because it possesses certain inherent advantages over every other form of property transportation, it is funda-

BUILDERS OF THIS TRUCK had no idea that in 30 years trucking would be a potent force in U. S. economy.

MASS MOVEMENT of men and material during World War I proved truck's value and started the upswing of the industry.



NOT TIED to waterways or rails, trucks are free to travel anywhere on America's 3,200,000 miles of highway.



mental that truck transportation reached its present status and continues to grow.

Chief among the advantages is the flexibility and convenience of truck service. High on the list is its economy, its speed and its complete adaptability to the shipper's needs and to the type of property to be hauled.

Trucks can go anywhere, haul almost anything, and perform both assignments within the specifications of agriculture and industry to an extent not paralleled by any other form of transport.

The ability to go anywhere on roadways means that the 25,000 communities in this country, not on railroads, or waterways, can get everything they need and with economy and dispatch.

Not only has this resulted in a new lease on life for communities not served by railroads but it is dictating the creation and expansion of new communities. It seems apparent that the day of railroad trackage building is done. Today, it is commonplace to observe factories located miles from a rail point or rail track. Trucks tie these factories together, with the source of raw materials and the market place for finished products.

Trucks take a direct route from point to point. They need no switching yards or assembly points. Because there is minimum handling, packing and crating costs and damage are greatly reduced. In the case of household goods, for example, trucks do the entire job. Often for less than it would cost to crate the goods for movement by rail.

Retail Business Revolutionized

Trucks excel in the movement of small packages and less-than-carload shipments. For the merchant, and particularly the smaller and medium-size business house, this service has shaped the whole character of U.S. retailing. Thanks to the speed of truck service, today's retailer can keep fresh stocks on his shelves. He no longer has to buy far ahead and in large quantities to be certain to have the goods his customer wants. A telephone call to a supplier hundreds of miles away will fill the depleted stock overnight.

This kind of buying enables the merchant to keep abreast of price developments in his line. On a falling price market he can order close to the vest, and be assured that his supply will reach him in time to prevent loss of sales. On a rising market he still has the advantage of buying in quantity.

The increase in turnover brought about in the retail field by the truck has been a factor of incalculable value in cutting distribution costs and making opera-

tion on a close profit margin possible.

Development of the refrigerated truck, known as a "reefer," has revolutionized distribution of meats, fish, oysters, and other perishable food products. Recently, it has been a prime factor in the astounding growth of the orange juice industry which depends largely upon trucks to rush the product to market.

Outstanding in the growth of the trucking industry is the ease with which truck transportation can be adapted to meet the service requirements, on or off highway, of the grower, producer, explorer, miner, or fabricator.

City Folks and Farmers Live Better

The impact of the motor truck on city life has never been fully understood. Our great cities stand helpless when the trucks cease to roll. Occasionally, a terrific snow storm paralyzes street travel. Only then does the attention of the city dweller turn to the source of supply of food and fuel and only then does the motor truck get momentary appreciation. Trucks, cars, and buses, comprise the centrifugal source which is disintegrating our centers of population and whirling hundreds of thousands of citizens out into the suburbs for better living.

Today's city worker can live on a farm or in a small community 20 to 50 miles from work. He suffers no inconvenience because of lack of anything which his city contemporary enjoys. His car takes him to work and back or he uses public transportation. The school bus hauls his children safely to and from school. The truck brings him food, fuel, furniture, or any commodity he could get in the city.

Not generally understood is the part played by the truck in the current revolution in agriculture. Thanks

MERCHANTS CAN KEEP fresh stock on their shelves and fill rush orders overnight when delivery is by truck.

to the truck, the American farmer today enjoys life on a scale undreamed of by his parents. Furthermore, the trend to mechanized farming, which is only industrial mass production techniques applied to agriculture, is dependent upon motor transport. More than 2,000,000 trucks are owned and operated by farmers.

The chores trucks perform are many and varied. To the farm they haul everything consumed on it. From it they haul the product of the soil. Utilized as a power unit, with power take-off, they saw wood, pump water,

SUCCESS of the fast-growing concentrated orange juice industry is due in part to the use of "reefer" trucks.

WHEN A BLIZZARD paralyzes street traffic, city folks realize the importance and need for trucking.

fill silo, load hay, spray orchards, and perform a variety of other chores. The farm truck is also a passenger transporter, not only for farm workers but also for the family on many occasions. Some 31 percent of all farms have no cars, simply a light truck, and a heavy one, or both.

Livestock Rolls on Rubber

The truck has revolutionized marketing practices in agriculture. Not only has it expanded the farmer's markets, made him independent of buyers in the closest town, but it has also made him price-conscious. An important part of many farmers' radio listening habits is the ear turned to the livestock market reports. Today's farmer can cash in on a firm market by simply calling the agricultural hauler and rushing his livestock to yards with a minimum of dehydration and injury.

Furthermore, the growth of truck transport has caused the decentralization of markets. Up to 1920, for example, a farmer in Iowa sent most of his livestock either to Omaha or to Chicago. If he didn't drive them in, he sent them by rail. In those days most meat was packed in about twenty packing centers. Chicago was predominant. Although it is still the capital today, Chicago is battling for business with 3,500 packing plants.

In 1916, virtually all livestock came to principal markets by rail. At these same markets today, better than 57 percent of the cattle, 62 percent of the hogs, and 35 percent of the lambs come by truck. Poultry, vegetables, and milk reflect the same growing dependence of the farmer on the truck and the truck's vital service to the farm and to the farmer's market.

In an analysis of the ten major markets—we find live poultry (1948 figures) coming in by truck to a percentage of 97.5 of the total as compared with 88.5 percent in 1946. Fresh eggs in 1948 came in to these markets to the tune of 65 percent of the total compared with 46.2 in 1946; butter, 43.8 percent against 22.6; and cheese, 19.9 percent against 9.4.

For the farmer this has meant more money for what he produced. For the consumer generally it has meant wider variety, better quality, and lower price for the farm products he uses.

Shipper or Truck Owner?

Truck transportation has brought about a significant change in the relationship of transport and the shipper. Not only has it introduced a new and progressive element in the for-hire transportation field,

TURNABOUT . . . not only does the farmer feed waiting markets by truck . . . his supplies are trucked in to him.

LIVESTOCK is rushed to stockyards. The growth of the trucking industry has caused the decentralization of markets.

SHIPPERS WHO ARE DISSATISFIED with rates in other forms of transportation often operate their own fleets, too.

Private trucking has grown tremendously . . . 6 million trucks are now

but the mere existence of the truck has set up for the producer a yardstick of transportation costs which serves to control hired transportation.

Any producer or distributor who today feels that hired transportation is too costly may turn to truck transport and haul his own products in his own vehicle. Actually, this situation gives truck transportation a dual role: it may perform a hauling job either as a hired servant of the shipper, or as a self-owned and operated medium.

Growth of Private Carriers

Today, the private carrier, engaged in hauling his own goods in his own trucks, vastly outnumbers the for-hire operator. Approximately 6,000,000 of the nation's total number of trucks is so engaged.

This is something new, and vastly important in transportation. In this respect, the advent and operation of motor truck transportation has had a tremendous impact upon transportation economics. It may well be that this functional quality, broadly considered, constitutes the outstanding contribution of motor transport. Certainly it is the most revolutionary.

No current statistical breakdown of the nation's truck fleet by occupational use is available. However, during the operation of the Office of Defense Transportation one such breakdown was compiled, listing ownership and operation by vocational uses as of August 31, 1944. William A. Bresnahan, Director of Research, American Trucking Associations, has projected the pattern of this vocational use to bring the figures up-to-date with reference to a total operation of 7,200,000 trucks and tractors and 300,000 trailers and semi-trailers.

The Automobile Manufacturers Association has developed statistics tracing the impact of truck transport in only a few fields, having mostly to do with foodstuffs. For example, in 75 major cities 100 percent of all incoming milk comes by truck. These cities range in size from Amarillo, Tex., with population of 87,000, to Los Angeles, Calif., with population of 4,027,000. Local delivery of milk in almost 100 percent of all cities is by motor truck and the percentages cited refer to how the milk gets from the dairy farmer to the city.

Twelve of our major wholesale markets now receive 44 percent of all fruits and vegetables by truck from the source. Green corn comes to these markets 86 percent by truck; cucumbers, about 79 percent; beans, 78 percent; sweet potatoes, 75 percent; peaches, 65 percent; cabbage, 64 percent; cauliflower, 63 percent; apples, 58 percent.

To what extent the truck is really the workhorse in the hauling field is known to few people. Even coal is delivered by truck from anthracite and soft coal strip mines. In the case of anthracite, this amounted to only 7.2 percent of the total produced in 1932 but by 1947 the percentage had mounted to 21.8. This compares with the rise of soft coal stripping and truck hauling which rose from 6.3 percent to 22.1 percent in the same period.

With regular and special equipment, trucks are now moving such products as general freight, petroleum, liquid foods, oilfield equipment, chemicals, extremely valuable articles requiring armed guard service, boats,

BREAKDOWN OF TRUCK FLEET BY VOCATIONAL USES

(Based on data compiled by the Office of Defense Transportation as of August 31, 1944)

	Trucks & Truck Tractors	Percent of Total	Trailers and Semi-Trailers	Percent of Total
Governmental Agencies	353,520	4.91	11,280	3.76
Agricultural Agencies	2,493,360	34.63	13,110	4.37
Extractive Industries	142,560	1.98	14,550	4.85
Construction Industries	658,800	9.15	11,220	3.74
Manufacturing Industries	267,280	3.99	28,650	9.55
Wholesale Distribution	553,680	7.69	21,180	7.06
Consumer Distribution	1,223,840	14.22	14,880	4.96
Intercity Common Carriers	229,680	3.19	90,120	30.04
Local Common Carriers	178,560	2.48	15,210	5.07
All Contract Carriers	524,160	7.28	36,300	12.10
Other Public Utilities	133,920	1.86	16,560	5.52
Business, Professional & Personal Services	196,560	2.73	5,700	1.90
Institutional Agencies	30,960	0.43	510	0.17
Private Tank Trucks	138,240	1.92	10,290	3.43
For-Hire Tank Trucks	21,600	0.30	10,230	3.41
Trucks for Personnel Transportation	230,400	3.20	180	0.06
Not Classified	2,880	0.04	30	0.01
Total Property Carrying Vehicles	**7,200,000**	**100.00**	**300,000**	**100.00**

employed by private companies

lumber, fuel, livestock, clothing, extremely fragile articles, film, newspapers, perishables of all kinds, explosives, seafood, meats, airplanes, heavy machinery and the whole range of agricultural, extractive and production industries.

Trucks Perform Services

Not generally thought of in terms of truck service, but nevertheless one of the most important contributions is the wide range of service trucks in operation in this country. Public utilities such as telephone, light, gas, and sanitation are major users of trucks. An outstanding example of the truck performing a vital civic function is the fire truck.

Trucks Are Regulated

As the number of trucks increased, and as the for-hire industry developed, the need for public controls over the expanding industry became apparent.

As early as 1926, a clamor arose for a Federal regulation of motor carriers engaged in interstate commerce. The upshot was the enactment by Congress of the Motor Carrier Act in 1935, placing motor carriers under the jurisdiction of the Interstate Commerce Commission and applying complete and extensive controls over interstate operations. The Act applied to common carriers and contract carriers. One important section of the law wrote an end to the day when all one needed to enter the for-hire trucking field was enough money to make a down payment on a truck.

The Act also gave the ICC broad powers to pass on financial transactions of all carriers. It required the filing by common carriers of rates charged for their services, subject to the approval of ICC. It further provided for rigid safety regulations and adequate insurance for protection of both shipper and public.

In 1940, Congress saw a need for revamping the entire transportation law and placing all types of transportation under its provisions. The result was the Transportation Act of 1940, which had as its objective the unification of regulation of all types of carriers to place them on a fair and equal competitive basis.

A phase of truck regulation which is conspicuously absent from the Federal Law is that dealing with permissible sizes and weights. This has been reserved to the states under their respective police powers. In spite of conflicting state laws covering sizes and weights, both private and for-hire carriers have prospered under ICC regulation.

Associations

Prior to the depression, the owners of trucks were loosely organized. Truck associations were scattered here and there in the various states and usually died of financial anemia.

It took until 1933 before the trucking industry banded together in a single association, the American Trucking Associations, Inc. In addition to its wide range of services to truck owners, the outstanding accomplishment of the ATA has been its success in maintaining a united front among many divergent and often conflicting types of truck ownership and operation.

In 1939, the ICC moved toward the promulgation of motor carrier safety regulations. Private motor truck owners found it impossible to see eye to eye in such matters with their for-hire carrier friends. The National Council of Private Motor Truck Owners, Inc., was organized. Today its membership, comprised of individual firms, state associations of private motor

HAULING TIMBER is only one of the heavy-duty, special equipment jobs performed by the trucking industry.

FIRE DEPARTMENTS, telephone, gas, light and sanitation companies are major users of trucks in the service field.

truck owners, and national trade associations whose members depend upon private trucks, is said to operate in excess of one million motor trucks.

What's in the Future

No gift of prophecy is required to predict continued growth in size as the truck industry develops and expands its service to the people. The path ahead of the trucking industry is by no means smooth because of the major problems requiring solution.

PROBLEM I—TRAFFIC CONGESTION—In today's concentrated metropolitan areas, the cost of delivering everything the cities eat, wear and use is steadily mounting because of crowded streets and inadequate loading and unloading facilities.

On almost any business street in the United States there is evidence of the serious nature of this problem.

PROBLEM II—A FAIR TAX STRUCTURE—The traffic load on our highways is perhaps a more serious factor in the growth of truck transport. There are many plans for extension and improvement of our pattern of intercity highways. Many of these programs will be carried out wholly or in part. They are all identical in one respect: they are extremely costly. Unquestionably, the financing of these super-highway programs will fall heavily on the users, and particularly upon trucks in proportion to their total of registration. In 1949 trucks constituted only 18 percent of the total of all vehicles but paid 32 percent of the total assessed all highway users.

The fact is that trucks in 1948 paid a total of $719,000,000 in special highway use taxes, in addition to $370,000,000 in excise taxes on gasoline, parts, tires, vehicles and such items. This is a tax total of $1,089,-000,000.

This is a formidable problem that still has to be solved.

PROBLEM III—SIZES and WEIGHTS—Another problem faced by trucking industry is the question of truck dimensions. There are many proposals to limit the dimensional specifications of motor trucks, even to the point of cutting back on today's legal axle loads of both private and for-hire trucks.

The size and weight problem still has to be solved

Trucking is Still Growing

One thing is certain. Truck transportation has come of age. It has grown in the face of untold difficulties: the lack of hard-surfaced roads in the early days, the inefficiency of early equipment, the fierce internal and external competition in the for-hire field and the fluctuations of our national economy.

In their day these problems posed as great difficulties as those now currently confronting truck transport. If the past is any index, the trucking industry is only on the threshold of its ultimate function in our economy. Behind it is an imposing record.

Next to agriculture, it is the greatest direct employer in the U. S., with more than 5,000,000 men and women on its payroll. To serve it, manufacturers employ millions more.

Its impact is felt in the life of every community, by every man, woman, and child in the U. S. Truck

EVEN SUPER HIGHWAYS become jammed at peak periods. This is only a small part of the traffic problem. Look at . . .

service has become so important that should the big wheels stop rolling no community in the U. S. could escape paralysis within a few weeks.

In 1950, trucks will come off the production lines around the country to go into service in all 46 states. Raw materials and finished products from every state will be used. Production means jobs in obscure places and in great cities, jobs never calculated in the overall statistics of what trucks mean to the U. S.

The trucking industry should face the future with optimism and enthusiasm. There is an excellent future for any industry so closely identified with every aspect of American life: as a service industry, as a payer of taxes, as an employer, and as a consumer of goods and the labor of others.

Acknowledgement is made to ATA's Walter Belson for inspirational and factual aid. Credit for the major share of photographs belongs to Charles Phelps Cushing.

WHAT HAPPENS when no adequate unloading facilities are provided and trucks are forced to unload in the street.

THE TRUCK INDUSTRY operates...

...over 7,200,000 trucks and trailers

EMPLOYS...

...over 5,000,000 workers

PAYS...

...$1,032,000,000 a year in special highway use taxes

USES EACH YEAR...

...533,000,000 qts. of oil

...7,800,000,000 gal. of gasoline

...7,900,000 gal. of anti-freeze

...87,580,000 lbs. of copper

...1,732,000 tons of steel

...93,000 tons of iron

...6,150,000 lbs. of glycerine

...64,800,000 lbs. of paint and thinner

...54,000 lbs. of lead

...6,000,000 lbs. of plastics

...6,800,000 lbs. of tin

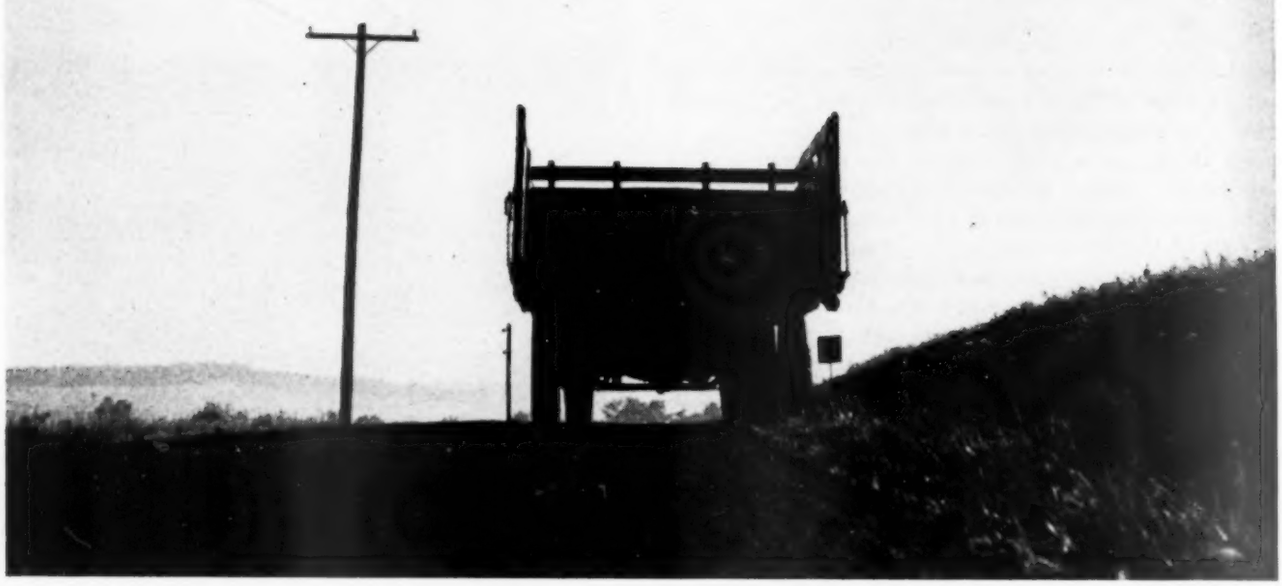
...109,000 long tons of rubber

...95,000 bales of cotton

...24,000,000 sq. ft. of glass

...15,180,000 lbs. of aluminum

...118,300,000 board ft. of lumber



Pass the Bucket...

There's a FIRE!

It's smouldering in Congress, in Governors' mansions, in state legislatures, in motor vehicle departments, in some newspapers and periodicals . . . in breasts of motorists in traffic-jammed city streets and on narrow, hilly, open highways.

It's getting hotter!

It is anti-truck sentiment.

"Who done it?" There are lots of people to blame—including some Fleet Owners.

Officials says trucks are being illegally overloaded . . . U. S. Public Roads Commissioner Thomas H. MacDonald says overloaded trucks are ruining American highways . . . railroad propagandists jam the radio and press with anti-truck stuff . . . automobile associations and auto clubs grab it as a popular issue to exploit . . . and in full cry on the heels of the truck—your truck—a press that's bad enough and getting worse.

Every man who owns a truck—every man who drives one can HELP PUT THAT FIRE OUT!

The job begins at home!

We can stop loading trucks beyond legal limit.

We can teach drivers the golden rule . . . it works on highways, too.

We can keep trucks in safe "rolling" condition . . . it saves money—lives.

We know how the motor truck contributes to comfort, convenience, higher standard of living . . . to prosperity of the farmer . . . to efficiency in production and distribution.

We can help our customers, officials, legislators to know what fast, flexible, efficient, economical motor trucks mean to every American.*

But—FIRST THINGS FIRST.

Let's get our own house in order.

Then, let's sit down with our competitors in that other good form of land transportation . . . and with all our critics.

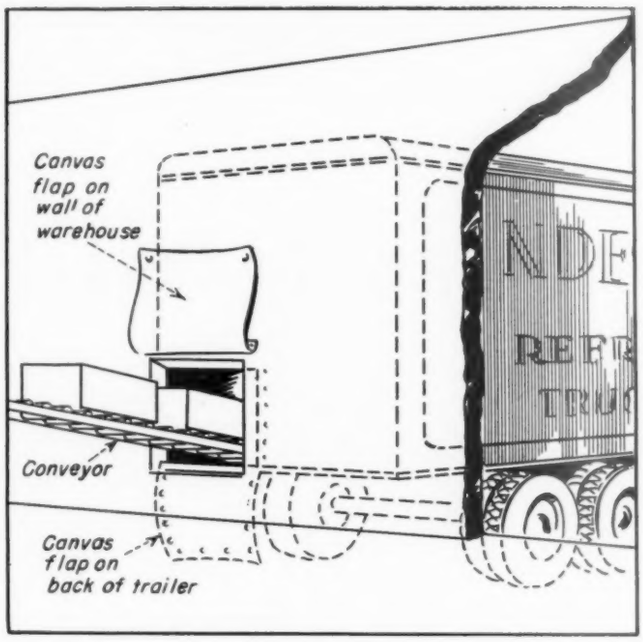
The situation needs "buckets" of diplomacy and understanding.

Let's all help put out the FIRE!

*See "Salute to the MOTOR TRUCK" in this issue.

Editor

Juice concentrate hauls start with picking fruit for the canning plants, then freezing, and →



Loading The Reefers . . .

Refrigerated trucks back against storage room at packing plants, so frozen concentrates are not exposed to warm air.

FROZEN FRUIT JUICES . . .

Hot Profit Item For Reefers

Truck Superiority Based On Ability To Maintain Zero Temperature

THE FRUIT JUICE on the nation's breakfast table coming out of a can symbolizes a vast, rapidly expanding field in the frozen food industry and an equally vast, and expanding field for refrigerated trailer service in the truck industry.

Estimates of the potentials in the frozen fruit juice concentrate field for the new season beginning this month are staggering. The truck industry is right in the middle of this expansion, offering the best in year-round transportation facilities since the concentrate must be kept at around zero.

Trucks have been moving about 70 percent of the concentrate from freezing plants to cold storage warehouses in northern and midwestern cities. The precentage is quite likely to zoom higher. Right now all eyes are on hauls out of Florida, with side glances at California. For the long-time haul—watch Texas.

Sales of concentrates in 1948 represented 5 percent of the total frozen food business. Last year this percentage jumped to about 12½ percent. Estimates for 1950 are 25 percent. Citrus experts claim 10 percent of the nation's can output will be needed to handle the Florida concentrate business this year.

Frozen juice sales soar

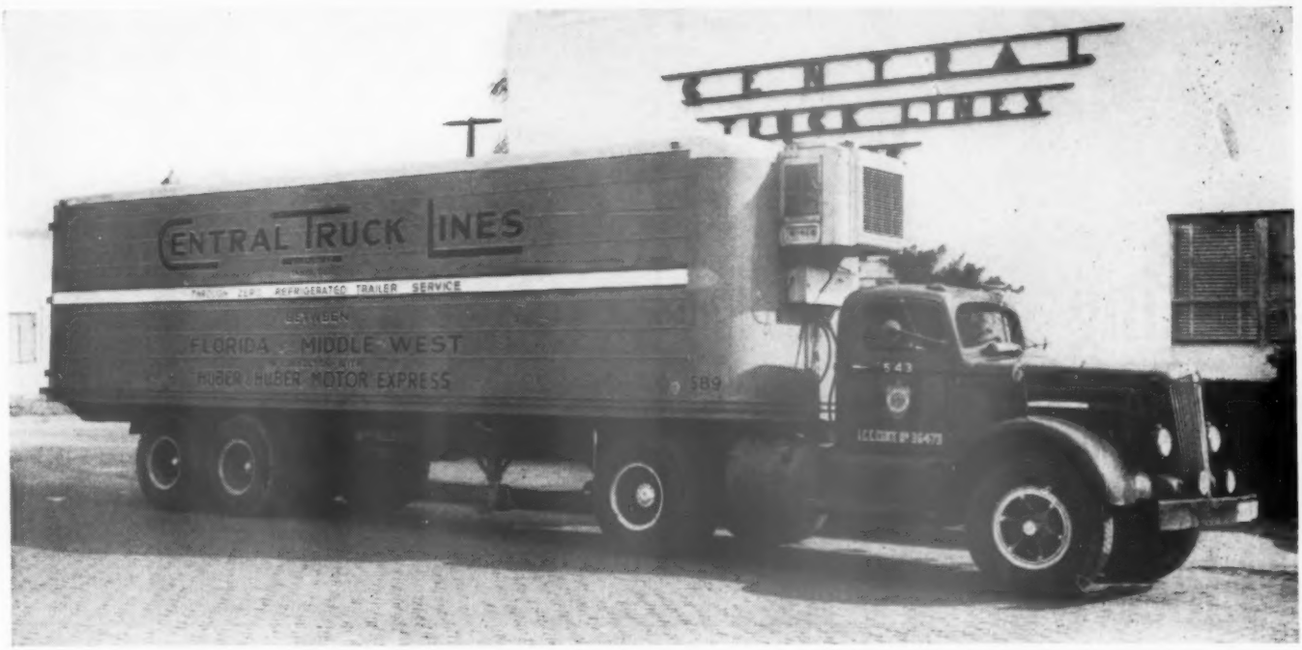
Frozen juice concentrate came into the marketing picture several years ago. Small cans, 4 or 6-ounce, plus water, make a drink tasting like juice from freshly squeezed fruit, at a fraction of the cost of fresh fruit and without garbage disposal. Housewives like the idea, evidenced by soaring retail sales, and the frozen food industry has met the demand.

Trucks perform two services—reefers transport the concentrate, and "cold" delivery trucks distribute from local cold storage warehouses to retail stores.

Here is the truck transport picture:

Temperature requirements. Cargo must be kept at zero. This requirement is admirably met by reefers with 6-in. insulation in walls, top, and bottom, with mechanical refrigerating equipment; and the cargo loaded with air space all around. Cargoes come through without loss in transit on account of thawing.

Loading. Trailers are loaded at freezing plants with little loss of temperature. Reefers have a canvas drop cloth that fastens over the end when the doors are opened. There



For Over-The-Road Transportation . . .

Reefers with six-inches of insulation in sides, top, and bottom, with mechanical refrigeration equipment, can maintain zero temperatures, deliver cargo without any intransit loss, giving trucks decided advantage on frozen juice runs.

With Local Distribution . . .

Smaller insulated trucks are used to haul frozen juice concentrates from cold storage warehouses to the local grocer.

To Store Cabinets

The housewife finds frozen juice a more attractive buy, from well-stocked displays, thanks to motor truck transportation.

is a flap, about two feet square, in the lower left corner. The concentrate plant freezing room has a door, about three feet square, in the wall toward the loading dock, also with a canvas drop cloth. A conveyor runs from the freezer plant into the trailer, through the canvas drops. Boxes of concentrate roll directly into the trailer, with little exposure to warmer air.

After loading the reefer is kept at the plant until zero temperature is recorded. The refrigerating equipment is a holding unit, not a freezing unit.

Loads are easy to stack. Concentrate comes in uniform size boxes, forty-eight 6-ounce cans weighing 28½ lbs. Boxes of frozen vegetables and fruit vary in size on account of the weight of the product. Frozen strawberries weigh more than frozen peas. Hence, juice concentrate with its uniform weight makes for easier loading of a reefer as compared with handling mixed loads of frozen foods.

Loads are delivered to cold storage warehouses. There are about 12 such storage companies in New York, 10 in Chicago.

Scheduling. The food industry handles the concentrates in small quantities, hence fast, dependable

(*Continued on page* 130)

Fixing Things Electrical

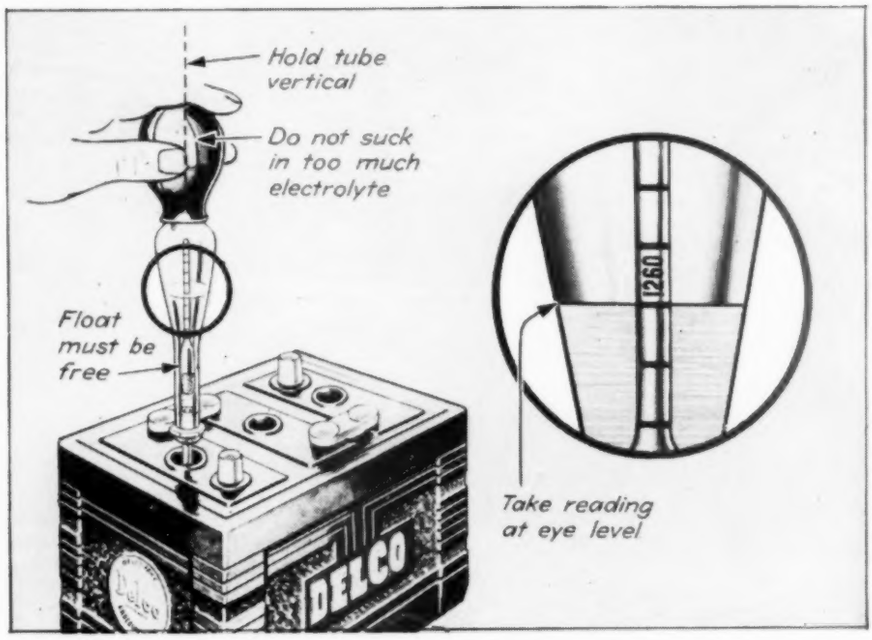


Fig. 1—First step in battery checking is to measure specific gravity with hydrometer. If electrolyte is too low, add water, run engine an hour, then make check.

Maintenance plus adequate records best insurance

by William H. Crouse

Editor of Technical Books
McGraw-Hill Book Company

Formerly Director of Field Education, Delco-Remy, General Motors Corporation

Author of
AUTOMOTIVE MECHANICS
EVERYDAY AUTOMOBILE REPAIRS
AUTOMOTIVE ELECTRICAL EQUIPMENT

ELECTRICAL MAINTENANCE is a major part of the shop program. A driver stuck 40 miles from nowhere with a run-down battery can attest to that in a colorful and explicit manner. When pushing 20 or 30 tons of rig and load on a tight schedule, everything's got to be right. Here's how to check.

The Battery

Many fleet operators keep detailed battery records on the theory that the small added expense is more than repaid by the reduction of premature failures.

If records are kept a battery using too much water will be spotted quickly. Such a battery is probably being overcharged and will have a short life.

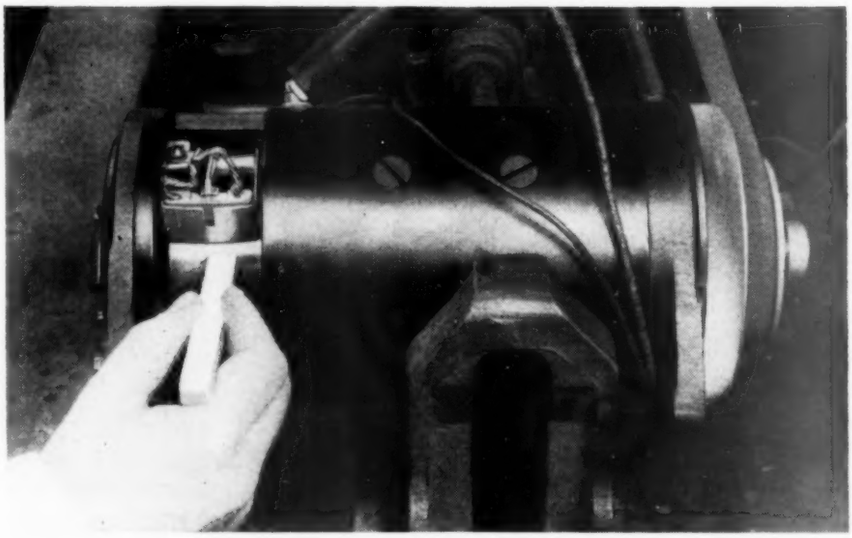


Fig. 4—Using a brush seating stone for cleaning commutator and for seating generator brushes. Stone can be used with generator on vehicle, or on work bench.

A look at the records will quickly indicate what is at fault; a fact that can be verified by tests outlined below.

The first step in checking a battery is to use a hydrometer to measure the specific gravity, Fig. 1. If the electrolyte level is so low that a hydrometer check cannot be made, water is added and the battery charged for at least an hour to assure thorough mixing of the water.

If the gravity reading is below 1.225 then the possibility of a recharge can be considered. However, if the truck is going out on a daylight trip where the electrical demands will be small, and the generator-regulator system is okay, perhaps the battery will get charged satisfactorily during the trip. Usually, however, there is no sense in gambling and the battery can be put on charge either with a quick-charger

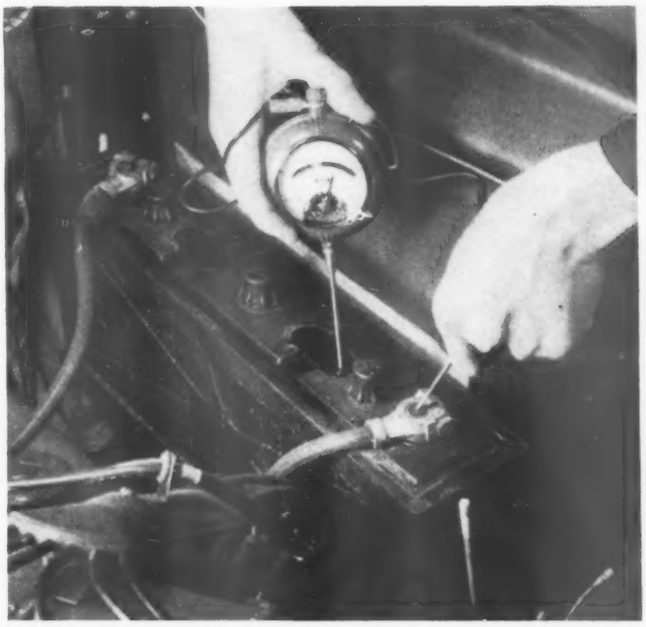


Fig. 2—High-discharge test is made with ignition off, and all cells tested quickly with low-reading voltmeter.

Fig. 3—Line of solder on coverband indicates generator commutator connections melted on account of overheating.

against idle time and costly electrical failures

Figs. 1, 3 and 6, Delco Remy Photos

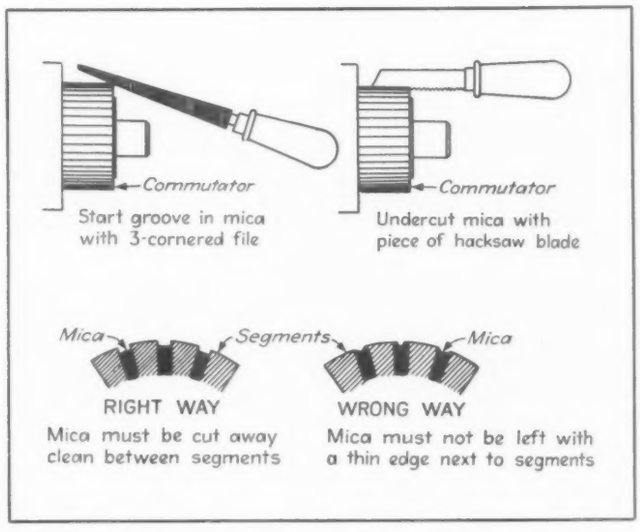


Fig. 5—The right and wrong way to undercut mica with hacksaw blade after generator armature is in the lathe.

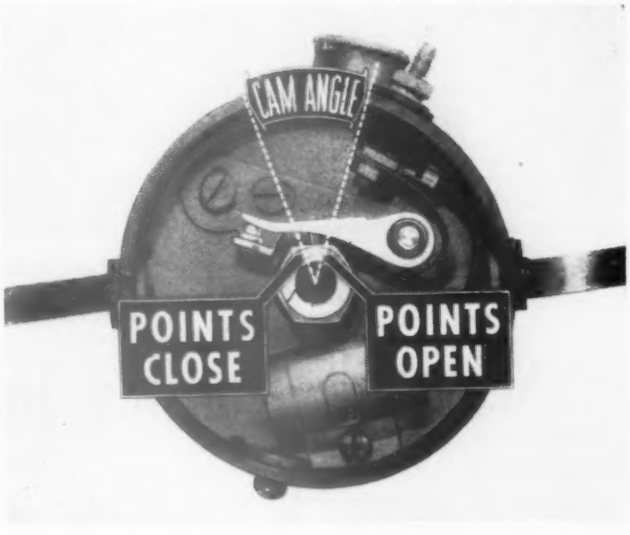


Fig. 6—Degrees that cam rotates from instant points close until instant points open measure the cam angle.

properly used, of course, or it may be removed for slow charging.

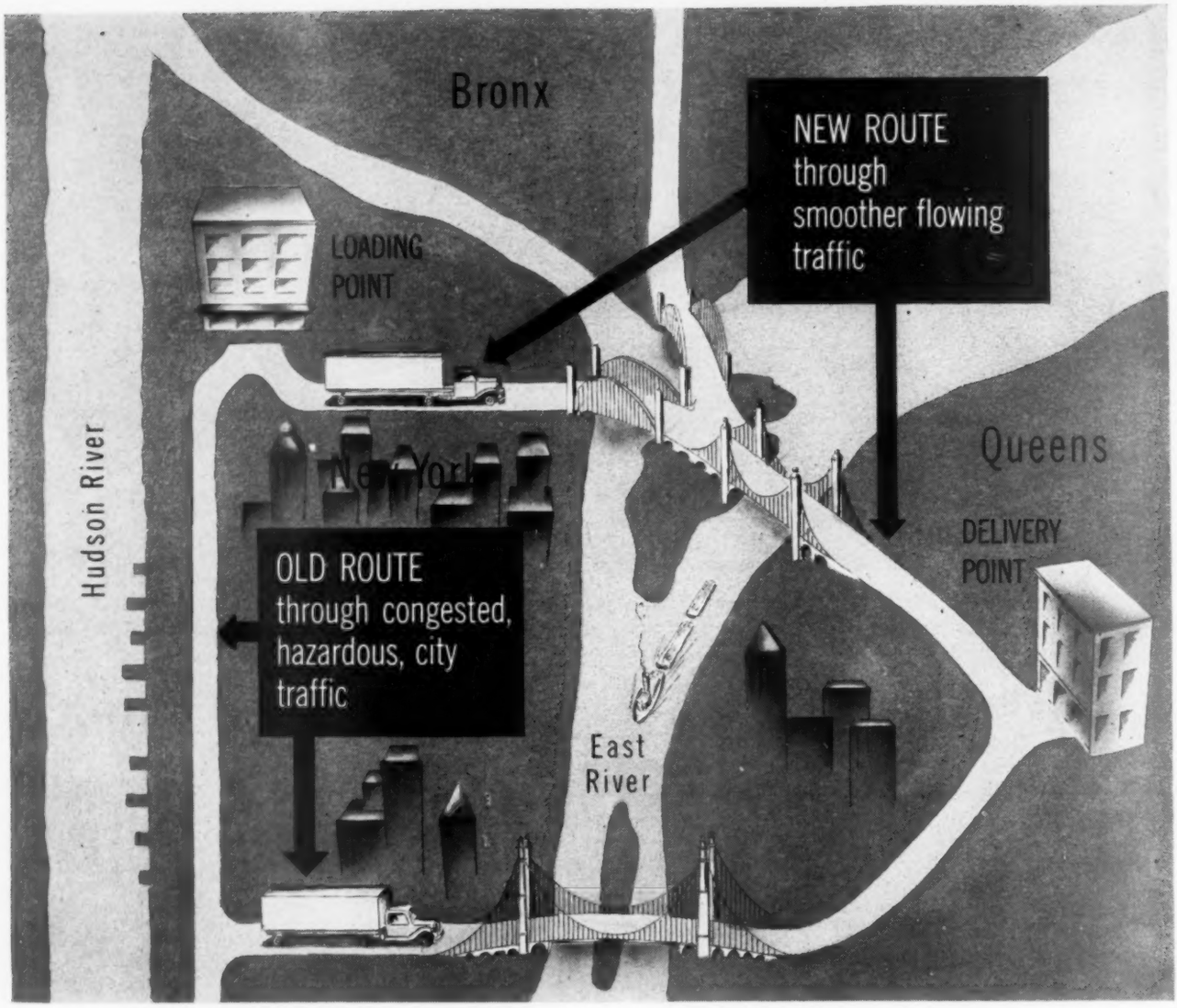
If the gravity is above 1.225 a further check on battery condition may be made by a high-discharge test. To make this test on the truck the starting motor is operated with the ignition off and the battery cell voltages are simultaneously measured with a low-reading voltmeter, Fig. 2. The starting motor must not be operated longer than 30 seconds at a time. Long cranking periods overheat the starting motor and may actually ruin it. If the cell voltages drop below about 1.5 volts during this test, or if there is a difference of more than about 2/10 volt between cells, it is probable that the battery is old or is in a partly discharged condition.

When adding water be sure to follow directions if the battery has a non-overfill device, but in any event avoid adding too much water. Overwatering will cause the electrolyte to overflow. Lost electrolyte means lost battery capacity. Furthermore, the electrolyte is corrosive and will eat any metal or fabric with which it comes in contact. The battery top and holder can be flushed off with water and wiped.

The Regulator

Immediately after the high-discharge battery test, the generator regulator may be checked. This is a good time to make the test since

(*Continued on page* 94)



Truck delays caused by congestion and traffic hazards are avoided by proper route selection.

Scientific Routing for Accident Prevention

by T. A. Dresher

Manager of Transportation
Borden's Farm Products
Division of The Borden Company, New York, N. Y.

Vehicle population growth is aggravating traffic congestion, and fleets are speeding deliveries and lowering costs by rerouting to by-pass hazardous areas. Here is how Borden handles the problem, and improves public relations.

A SAFER OPERATION resulting in greater economies is the result of the Borden's Farm Products highway routing program. This phase of the company's overall safety program has grown from the horse and wagon days to meet the pace set by today's delivery requirements. It eliminates some hazards of the highway by circumventing them; sometimes "taking

the long way home to get there sooner."

Time controls the program. Pasteurized milk is hauled from plants to distributing branches in various sections of metropolitan New York and New Jersey communities on a time schedule.

Specified routes are followed

Large, heavy-duty box-trailer units making the deliveries follow specified routes studied and found over the years to be less hazardous and less congested. The routes are followed without deviation unless traffic is diverted. This also makes it possible for the drivers to remain on a "point to point" schedule.

The routes are checked by operating department transportation supervisors for various accident hazards, and the hazardous areas whenever possible are avoided. Such hazards are railroad crossings, streets where trolley cars run, blind intersections, intersections with no traffic signals, crowded and congested areas, poorly lighted streets, and steep hills.

Trucks are scheduled from plants to branches, and time of departures and arrivals are recorded by operating department "drill men." When deliveries are continuously late, operating department personnel determines the causes of the delays. If delays are caused by some change in traffic and are not the fault of the driver, alternate routes are checked and trucks rerouted accordingly. Drivers are asked and encouraged to suggest better routes.

An example of a safer, faster route is found in the trek from the Riverside plant at 131st St. in Manhattan to the Long Island City branch. Trucks are routed down Broadway and across town on 124th St. to Tri-Boro Bridge, then to Long Island City. The route formerly was down Broadway and 12th Ave., across 59th St., over the Queensboro Bridge and Northern Blvd.

Savings: seven miles, one hour

The route presently used is safer as it avoids much of the congested areas in the center of Manhattan and Long Island City. On each round trip there is a saving of over seven miles; about two gallons less fuel is used; one hour is saved; and the wear and tear on trucks idling, stopping, and starting in the congested areas is reduced.

Another example of a safer route is from the Brooklyn plant to Rockville Centre. Trucks are routed via the Sunrise Highway instead of by the old route using Merrick Rd. A smoother flow of traffic prompted the change in this instance, making it a safer route.

The Borden's Farm Products heavy-duty trucks operate mostly when there is less highway and street congestion. Most deliveries are during the 12-hour period between 6 p.m. and 6 a.m.

Maintenance expenses are lower

Certain operating economies also are the result of safer operation. First, maintenance of schedules is necessary as milk is not an item that can be "shelved." Daily deliveries are necessary. Delays in deliveries raise the cost of operations.

Then there are fleet maintenance economies. Fewer body and fender repairs and replacements are necessary. Less fuel is used as there is less engine idling. Tie-ups strain equipment and run up maintenance and labor costs.

The proper routing of trucks has public relations angles, too. Trucks caught in congested areas are blamed by motorists for the tie-up. By keeping Borden trucks out of such areas these public attitudes are avoided.

Borden's overall safety program is evident in the following statistics. A total of 354 drivers has been awarded gold watches for over 15 years of driving without a reportable accident. Over 1,000 drivers have a five-year perfect driving record. The company has 2,000 drivers, travelling about 13 million miles annually.

Borden Farm Products has 34 percent of its drivers in the company's Quarter Century Club.

(Basic considerations for developing a plan for rerouting of trucks are given in the accompanying box. Here are six rules for use in checking a fleet's routing, and the answers will serve for establishing new routings.)

END

How to Develop a "Safety Routing Plan" for Your Fleet

1 Analyze the job to be done by making a thorough study of the route over which the vehicle moves, first as to how it gets from and to its origin and destination including its various stops, and secondly as to time when deliveries are made. Find out if your driver is in the habit of driving from his side of the street against traffic to serve a stop at the left side of the street and again pulling against traffic to get back into the proper lane; also determine if your driver has more stops to make than can be safely done in the driving time allotted.

2 Check all of the various hazards on the route. This should be done by both the vehicle operator and his supervisor.

3 Contact and work closely with local police or traffic departments to ascertain locations or areas of high accident frequency, also the time of day of accident peaks.

4 Familiarize your drivers with the traffic laws and ordinances, rules of the road, the posted and restricted highways, and other conditions affecting the routes.

5 Adjust routing and schedules both as to location and time of delivery so as to take advantage of safe driving areas and safe driving time of day. In rerouting or setting up a continuing study of traffic control, attention should be given to the following hazards to be avoided wherever possible:

(a) Blind intersections.
(b) Railroad crossings.
(c) Crowded streets and congested areas.
(d) Dead-end streets.
(e) Streets under repair.
(f) Poorly lighted streets.
(g) Steep hills.
(h) Schools.
(i) Play areas for children.
(j) Locations where a large number of people congregate, such as ball parks, shows, churches, etc.

6 Route heavy-duty vehicles only over heavy-duty highways.

Note: To be most effective your "Safety Routing Plan" should be checked at least twice a year in order to—(1) see that it is being observed, and (2) make changes where necessary to keep it up-to-date.

The trucking industry today pays more than 30 percent of all special highway - use taxes, such as gasoline and license fees, but constitutes only 17 percent of the total number of vehicles on our roads.

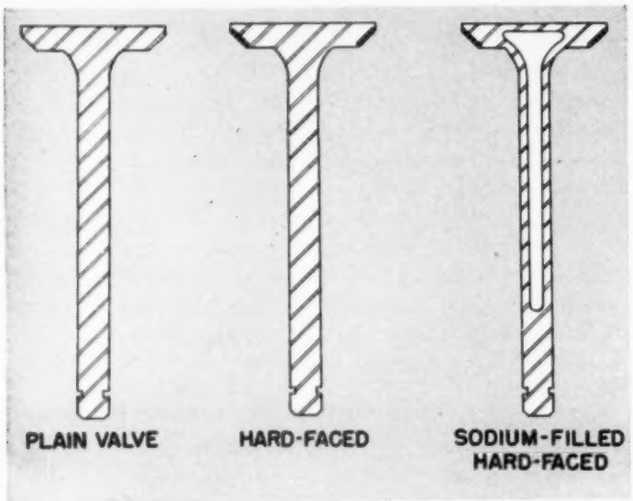


Fig. 1. Three main steps in design of valves for gasoline and Diesel engines, from plain to sodium-filled.

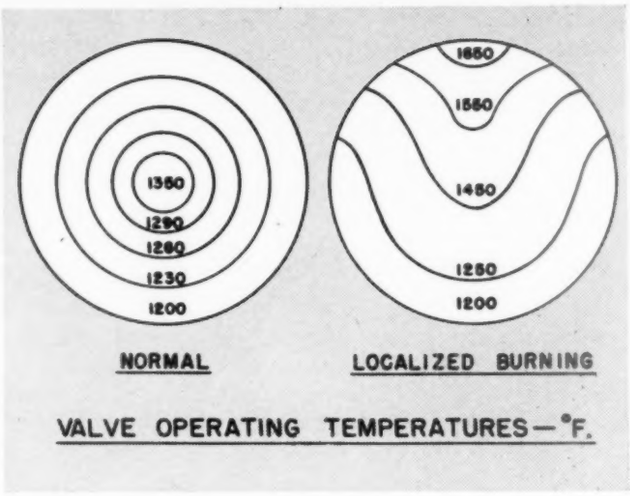


Fig. 2. Two temperature patterns, one which represents normal operations, the other a rapid temperature rise.

What's New In Engine Valves

by Norman Hoertz and R. Max Rogers

Thompson Products, Inc.

Maintenance Men Will Find Valuable Suggestions on Types and Designs, and on Fitting Valves to Engines in This West Coast SAE Meeting Paper.

WHILE THE PROBLEM of valve steels is best understood by and rightfully belongs in the hands of metallurgists, it is to the operator's advantage to understand the basic problems involved.

With understanding of the fundamentals of valve materials and design, the operator will be in a better position to determine the type of valves required for his needs.

Actually great strides have been made by the valve and steel producers in developing steels and valve designs which were in keeping with the increasing requirements for carrying heavier loads, longer life, and less breakdowns.

The field requirements of valves are many and varied which has made it almost impossible to develop a perfect steel. The evaluation of steels has been a combination of dynamometer and field tests.

Both tests are necessary since field results may agree or widely disagree with the laboratory.

Exhaust valve materials now in use for all practical purposes fall into three categories, as follows:

1. *The Ferritic Group*
   Example—Silcrome XB

The ferritic group is hardenable by heat treatment, has low coefficient of expansion; is comparatively easy to handle at the mill and in manufacture; and has comparatively good heat conductivity. Hot hardness is relatively low, and resistance to fatigue, corrosion, and stretch is generally lower than in the other groups.

2. *Austenitic Group*
   Sil. 10-TPA-2112

This group has excellent hot strength, in general good corrosion and oxidation resistance, good stretch resistance, with hot hardness higher than the ferritics. It is difficult to forge and machine; can only be hardened by mechanical work; and has a high coefficient of expansion with relatively poor conductivity.

3. *Sigma Precipitate Group*
   XCR, XCT

This group has the outstanding characteristic of high hot hardness, good corrosion and oxidation resistance, good stretch resistance, and can be hardened with a long heat cycle. Thermal expansion and conductivity fall between groups (1) and (2). It is very difficult to handle at the mill and factory. It contracts upon hardening, and an analysis must be closely held to get desired properties. The hard seat stem and tip, coupled with the other properties, make it the finest of valve steels.

Inconel X is a chrome nickel alloy, hardened by precipitation of AL-Ti compounds. It contains very little iron. It has some excellent properties for higher cost valves, which are

Fig. 3. Cracked hard facing is responsible for rapid burning of base material.

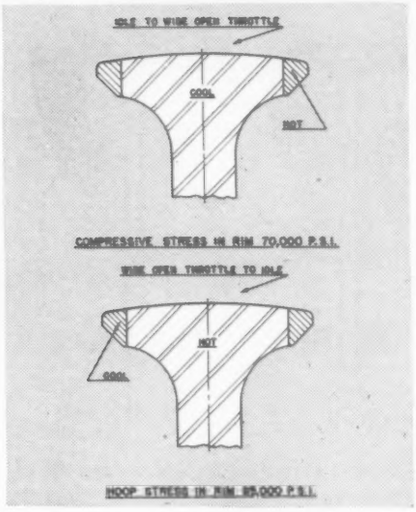


Fig. 4. Induced stresses probably caused by extremes in the operating conditions.

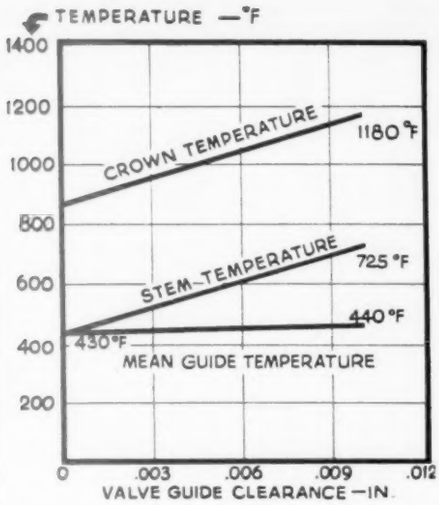
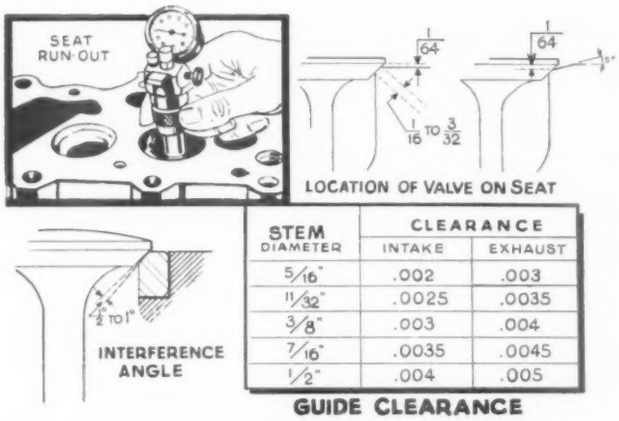


Fig. 5. Effect of increasing valve guide clearances on temperatures of valves.



STEM DIAMETER	CLEARANCE	
	INTAKE	EXHAUST
5/16"	.002	.003
11/32"	.0025	.0035
3/8"	.003	.004
7/16"	.0035	.0045
1/2"	.004	.005

GUIDE CLEARANCE

Fig. 6. Suggestions on fitting the valve to the engine.

O.D. OF SEAT INSERT	DEPTH OF INSERT								
	1/4 – 3/8			3/8 – 9/16			9/16 – 11/16		
	MAX.	MIN.	DESIRED	MAX.	MIN.	DESIRED	MAX.	MIN.	DESIRED
1"– 2"	.004	.002	.003						
2"– 3"				.005	.003	.004			
3"– 4"							.006	.004	.005

RECOMMENDED **PRESS FITS**

Fig. 7. Interference fits for use in installing seats.

now being explored, although it is very difficult to manufacture.

It should be pointed out that engines have their own individual characteristics, and hence, in any given engine, one steel may perform better than another. This may be a function of block design, cooling port design, cam design, spring pressures, operating temperatures, or other factors.

Chromium is the prime alloying element in heat resistant alloys. For most applications the amount is about 20 percent but in steel above 25 percent chromium, pronounced brittleness is present. Chromium is actually the key to oxidation and corrosion resistance.

Additions of nickel, silicon, manganese, cobalt, tungsten and molybdenum impart varying properties in combination with chromium.

Heat affects the hardness of all steels and different analyses show different patterns, insofar as the effects of heat are concerned. It is particularly interesting to note that the magnetic steel is harder than the austenitic at room temperature, but at higher ranges drops below it. Again, we should mention that hardness is only one characteristic of steel and is not a criterion to be used in judging the merits or demerits of a valve steel.

Corrosion resistance, fatigue resistance, stretch resistance, hot strength and other properties all come into the picture, but field results always determine the final answer.

Valve Design

Leaving the material problems, we come to valve design. Actually, there are only three main steps in the design of valves for gasoline and diesel engines.

These are as follows: (See Fig. 1)

1. A solid valve made of valve steel.

2. A solid valve with a seat of hard facing material.

3. A sodium cooled valve (with or without a hard faced seat).

Before selection is made of the valve design required, a study of valve operating temperatures is necessary. Fig. 2 shows two temperature patterns. The one indicated as normal represents a temperature pattern which might generally be expected in a normal operation. Heat is transferred from the valve to the block through the valve seat and then through the guide, so there is a natural build-up of temperature between these two points.

If, for some reason a leak occurs through block distortion, or through the flaking off of build-up on the seat, a rapid rise in temperature immediately occurs, as indicated at the right.

Hard facing of valves plays an

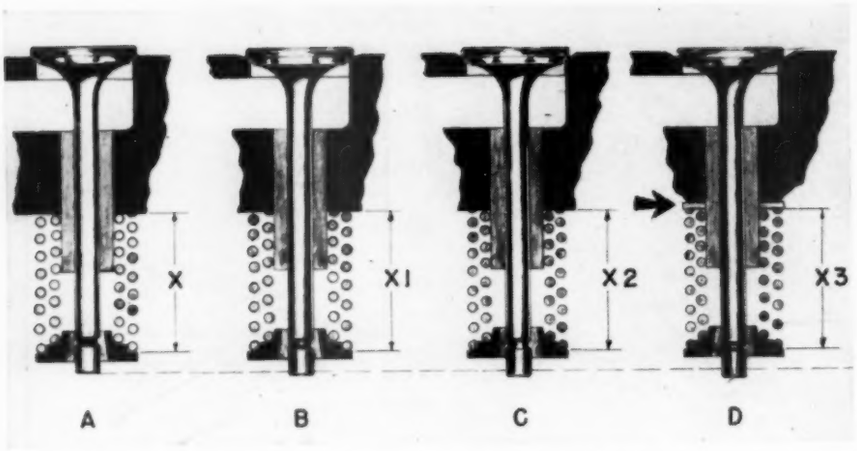


Fig. 8. Valve in three positions, A normal, B, C, and D indicating seat recessions of 1/32 in. progressively. Note washer in D to bring spring pressure back to normal.

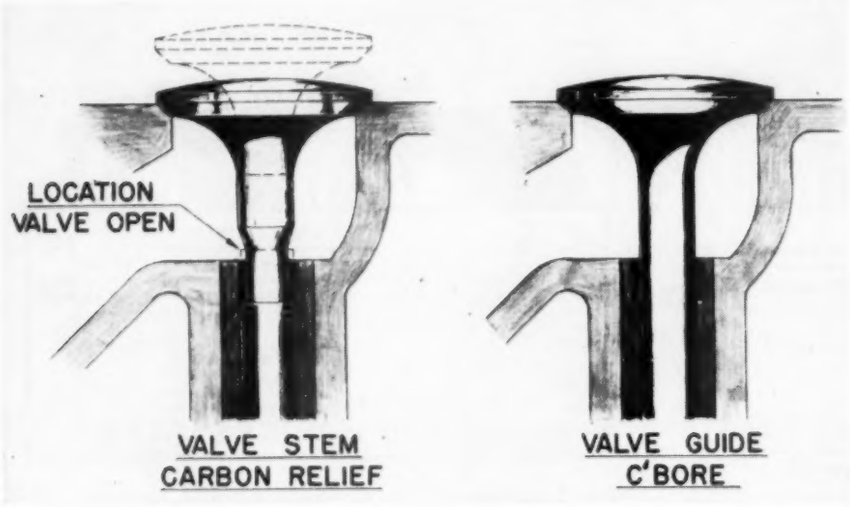


Fig. 9. Methods to prevent sticking; relief shown on left, counterboring on right.

Engines Valves (continued)

important role in the extended performance operators are getting today. Nichrome has been primarily used on aircraft, but stellite 6, coast metal 140 and stellite 6, coast metal 140 and stellite F have been quite commonly used in the automotive field.

Hard facing materials, in order to be practical, must have weldability, machineability, high hot hardness, good corrosion and oxidation resistance, compatible thermal expansion and high strength to resist stress caused by thermal gradients. Good heat conductivity is desirable, but usually unattainable.

Hard facing has won a place for itself in the automotive field. However it is by no means the cure for all ills. A rather common type of burning with hard facing is illustrated in Fig. 3 where the valve material is severely burned behind the hard facing. Such failures occur generally at a point on the valve face where the hard facing has cracked. It is believed that this cracking is a result of high thermal, plus mechanical stresses in the ring of the hard facing material.

Fig. 4 shows the probable induced stresses in a valve in going from two extremes in operating conditions. The case where the engine goes from idle to wide open throttle does not induce high thermal stresses, as the center section tends to retain the hard faced ring and actually produces a minimum stress at the outside face. However, when the engine is idled from wide open throttle, the hot center section puts the outside ring under a high tensile load, and tends to burst it. This condition, coupled with localized hot spots and aggravated mechanical stresses, is believed to cause this type of failure.

It is conceivable that after the crack occurs, the exhaust gases create a blow torch effect in escaping through the crack. The hard facing material, having the greater resistance to burning, will remain for some time after the base material is burned.

Sodium Cooled Valves

Sodium cooled valves have been used with excellent success in the aircraft industry for a number of years. Due to high cost of production, their use was for a long time confined almost exclusively to the aircraft industry. Refinements in production technique have been advanced to the point that the urgent need for sodium cooled valves in the automotive industry can and is now being realized.

Some of the properties of sodium which are utilized to increase valve life are:

(a) tends to wet valve steel,
(b) is a good conductor of heat,
(c) light in weight,
(d) exerts essentially no vapor pressure at operating temperature,
(e) liquefies at low temperature (220 deg. F.).

The cooling effects of sodium are accomplished when the metallic sodium liquefies in the valve stem.

The increased rate of removing heat from the valve head lowers the head temperature and tends to equalize the head temperature, preventing to some extend local hot spots which cause valve burning.

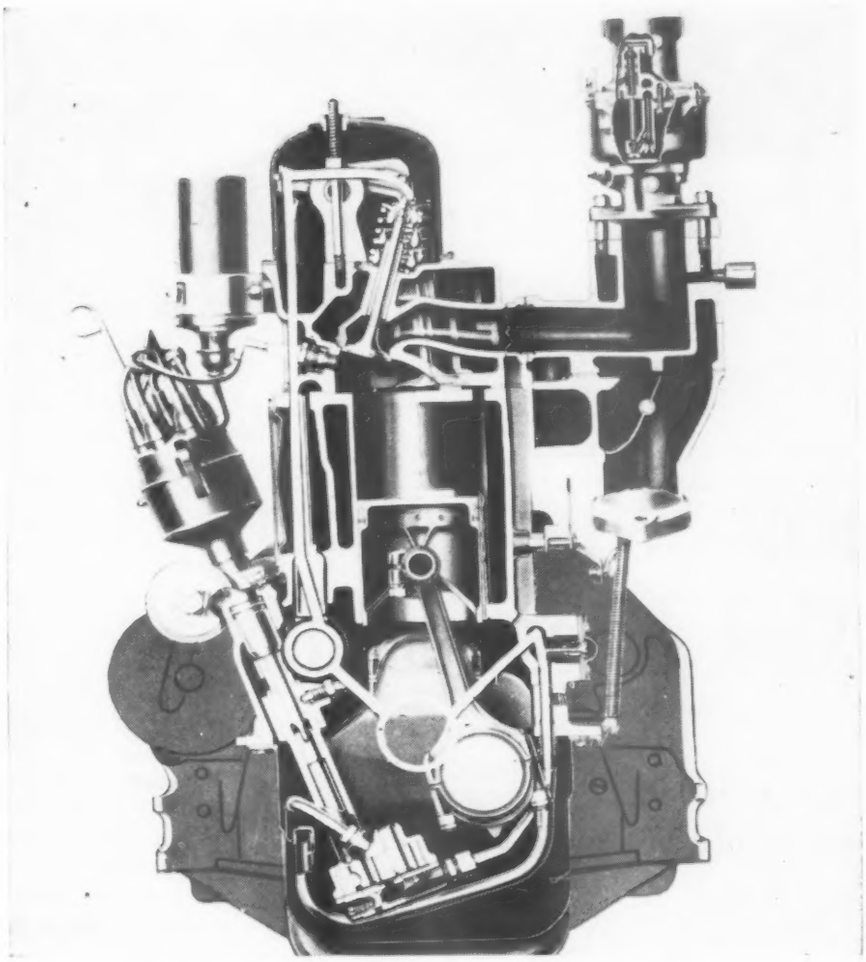
The fact that the heat of the head is transferred into the valve guide area makes it necessary to make a careful study of each engine before sodium cooled valves are applied. Out in the field sodium valves can only be applied on engines which have adequate cooling. It is highly recommended that operators contact either the engine builder or the valve manufacturer before making a change of this kind.

Extensive and lengthy tests have been run to evaluate valve heat transfer and operating temperatures. Sodium very definitely lowers the temperatures of the head and the underhead sections which, in many cases, takes them out of the critical or failure range.

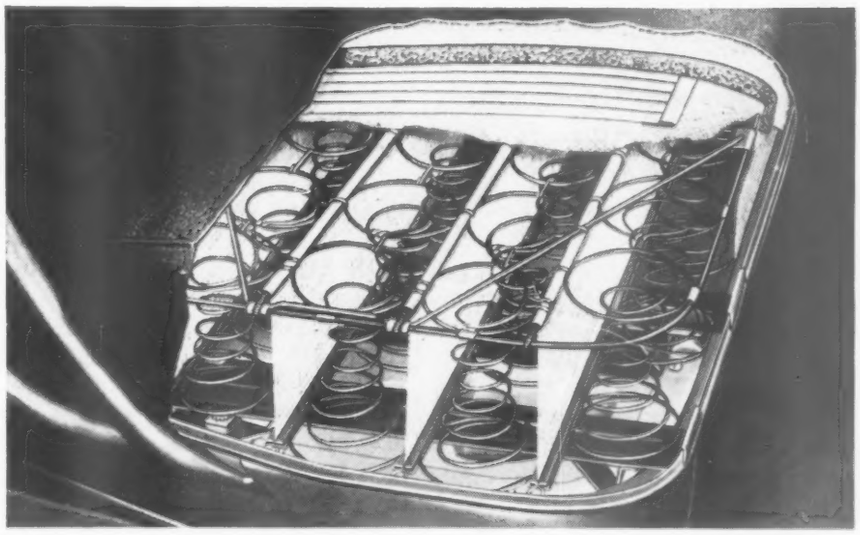
It is possible to use sodium cooled valves of 3/8 in. stem diameter, but

(*Continued on page* 107)

Features Added Horsepower



Cross section of the new Chevrolet Loadmaster "105."



Newly designed seat has Latex hair pad.

Capacity of Front Springs Increased

CHEVROLET ENTERS the new year with advancements in both trucks and passenger cars. Most significant among the changes are a sharp increase in horsepower in the larger engine and a modest increase in the smaller engine, the addition of a Suburban Carryall vehicle, and an optional automatic transmission in the passenger car where the large engine is used.

The output of the Loadmaster engine has been increased from 93 hp. to 105 hp. without increasing the piston displacement of 235½ cu. in. There is a 7 ft. lb. gain in torque. A maximum of 3200 rpm. is now permitted where formerly the governor setting was 2800 rpm. The increase in horsepower has been achieved through better breathing in addition to the increase in speed. Intake valves have a head area 39 percent larger than formerly and the exhaust valve area has been increased 4 percent.

There have been some changes in the carbureter for better low speed performance.

The Thriftmaster engine is now rated up to 92 hp. and 176 ft. lb. torque where previously the rating was 90 hp. and 174 ft. lb. torque.

New seat cushion construction along with a 2½ in. gain in seat width will make drivers happier. A 400 lb. increase in front spring capacity makes the truck more stable. Chevrolet is counting on operators taking advantage of this increase in front end capacity because the capacity of the steering knuckles and front wheel bearings have been increased.

Better floors are standard in some models. A larger booster brake improves the stop. There are a host of colors to pick from and the usual Chevrolet selection of bodies on wheelbases from 115 in. to 199 in. END

Standard Oil Co. (N. J.) photo by Libsohn

Trucks are exclusive transport suppliers for over 25,000 communities

The Public Needs the Facts About Slow Trucks on Hills

Four things to do about slow trucks on hills:

1. **Install oversized power plants, or reduce gross vehicle weight.**
2. **Eliminate all trucks.**
3. **Eliminate all grades.**
4. **Construct auxiliary, by-pass, lanes on hills.**

Four things to do—and four answers dealing with the fundamentals of the problems with facts that truck owners can use to improve the industry's relations with the public and with public officials.

by Leon F. Banigan

Editor

THE IMPATIENT MOTORIST mutters, "There ought to be a law!" as he attempts to pass a heavily laden motor truck laboring up a hill.

That's a public relations problem! It is a problem in which the fleet operator and the public have joint responsibility. The job—find a solution through mutual understanding of their dependence on each other.

The situation needs public tolerance based upon more complete understanding of the part trucks play in every phase of daily life.

The public needs to know the facts of truck operation—truck services. Fleet owners need to know the facts! Both need to know what is being done, what can be done, about slow trucks on hills. But, just knowing the facts is not enough. City officials, county officials, and state legislators must know the facts, too!

Right now highway transportation of property is experiencing a barrage of anti-truck attacks without equal in its history. There are several causes.

Highways and streets, during five years of war, suffered from lack of

new construction and insufficient maintenance. They were unprepared for the postwar volume of traffic. Congestion has resulted. Public irritation has increased.

Public officials relaxed their enforcement of size and weight limitations during the war. Trucks carried bigger loads. They still do. This defiance of law provoked criticism, then "crack-downs." It gave competing forms of transportation ammunition. It inspired the "crusading" type of articles in the press.

Industry Recognizes Problem

Organized truckers were powerful enough in some states to block efforts to obtain additional funds for postwar highway building. In retaliation some public officials, to justify higher truck taxes, have charged commercial vehicles with "destroying" highways.

American Automobile Association and some other user groups have found the slow truck on the hill an issue for popular exploitation. The railroads are having an anti-truck "field-day."

It is a fact that a slow-moving truck on a hill annoys a motorist. That fact has been recognized by the producers of both trucks and automobiles. The problem has been the subject of scientific study. The results are available.

Fundamentally, there are four things that can be done about slow trucks on hills.

1. Installation of oversized power plants, or reducing gross vehicle weight.

The Answer: Mere installation of larger and more powerful engines in trucks is not the solution. Even if power plant output could be doubled, the present two to four miles per hour attained by some trucks on steep grades might only be stepped up to six or eight miles. The motorist would not consider this a satisfactory improvement. What's worse, so slight an improvement would merely increase the hazard of passing by lengthening the distance required to pass.

Improvement of hill-climbing ability of motor trucks has been a subject for serious consideration for years by federal and state officials, the highway transport industry and the engineers of the motor vehicle manufacturing industry.

At the request of the Automobile Manufacturers Association the Motor Truck Rating Committee of the Society of Automotive Engineers developed a study which was approved in May, 1939. War caused delay in the continuation of this project. The stimulation of further technological improvement continues. Since the war there has been a marked improvement in hill climbing ability of new equipment.

Meantime, truck manufacturers recommend that for the present no state should require an ability ratio of less than 450 lbs. of gross vehicle weight for each certified net hp. This ratio, engineers say, will produce an appreciable improvement in the flow of traffic ascending grades without forcing a large quantity of existing equipment off the highways. To do so would result in economic loss to all businesses—to the entire country.

It is important that people know that trucks probably never will be able to take hills at the speed of passenger cars!

2. Elimination of all trucks from the highways.

The Answer: Many of the motorists who damn the "box cars" on the highway don't know of the more than 25,000 communities in the United States served exclusively by trucks. Many of them don't know, as they meet an irresponsible single truck driver, that truck associations and thousands of individual companies are applying scientific yardsticks and employing trained fleet supervisors to select and train new truck drivers even before they are allowed to take a vehicle onto the highway. Even some shippers forget the importance of highway transportation in the distribution of everything they buy, sell, wear, and eat.

Trucks Justify Highways

Those who would eliminate trucks from the highways claim that they are exclusively for passenger cars—and an inalienable right has been denied. But the motorist of today would not have the fine national net of highways if it were not for the tax contributions of trucks. There would be slight economic justifications for an $11 billion national highway program for pleasure driving.

Some of those who would drive trucks from the highways point to the occasional spectacular accident in which a truck is involved and damn the truck as a death-dealing monster.

The public thinks in terms of labels, and it is so easy to call an accident a "truck" mishap although a passenger car actually be at fault.

Truck Drivers Are Safer

The fact is that not only are most trucks more safely driven by experienced highway "pilots," but the tremendous loss of life on highways during holidays, when the highways are virtually cleared of trucks (and the motorists are fighting it out with no "damned" trucks in sight) should drive home a wholesome appreciation of the suggestion that one can hardly point his finger at the truck industry and demand removal of trucks from the highways, in view of the motorist record.

3. Elimination of all grades.

The Answer: The cost is prohibitive. Assuming an equitable distribution of such costs between the commercial vehicles which use the highways to serve the public and the public, which is served by the highways, both would go broke eliminating grades.

4. Construction of auxiliary traffic lanes (by-passes) for trucks on all steep grades.

The Answer: Very substantial gradual improvement is being provided: first by the building of more four-lane highways which provide a passing lane in each direction as motor trucks keep to the right; second, a substantial degree of accomplishment in providing auxiliary traffic lanes for trucks on steeper grades. Here again, however, the burden of cost on the taxpayer is high—especially in mountainous states.

The obvious conclusion must be that the problem of the slow truck on a hill is not soluble by legislation.

But the problem will be solved to the satisfaction of all people in the United States, including those who are served by truck and those who serve by trucks, when fleet owners and the public together keep in mind the fact that the economy of the United States today is predicated in a large measure on the flexibility and efficiency which the expanding use of motor trucks has introduced in the important field of transportation. END

INDUSTRY REVIEW

ICC Decision Protects Private Carrier Status

In a precedent-making decision handed down late in November the Interstate Commerce Commission ruled that motor vehicle operations in furtherance of a non-carrier primary business are not subject to ICC for-hire carrier regulation.

The Commission held that under such conditions (furtherance of a non-carrier primary business) a so-called "private carrier" need not operate such vehicles without compensation or on a strictly recovery-of-cost-basis — that a "private carrier" need not spread over all of the output of his establishment a factory price which would in every case include delivery, regardless of whether any transportation was furnished.

An adverse decision would have had the effect of driving hundreds of thousands of private motor trucks from the highways, requiring them to meet for-hire carrier tests as to public convenience and necessity.

This decision, affecting the ownership of more than six million commercial vehicles, (87% of all the trucks in the United States) was handed down by the entire Commission in a joint ruling in the Lenoir Chair Company and Schenley Distillers Corporation cases. The proceedings have been hotly contested over the past three years with the National Council of Private Motor Truck Owners, the Private Carrier Conference of American Truckings Associations, Inc., and supporters, on one side, and the common contract and other for-hire conferences of ATA, and the railroads on the other.

Interpretation of Words

The decision hinged on interpretation of the definition of "common," "contract" or "private" carrier as contained in the Motor Carrier Act of 1935. In that act, common and contract motor carriers were defined as transporters "for compensation." Private carriers were defined as transporters in furtherance of a non-transportation business.

Lenoir, a manufacturer of furniture at Lenoir and Newton, N. C., which operated only a few private trucks, added to the factory price of its merchandise a charge roughly comparable to the charges of rail or motor common carriers when making deliveries in its own motor trucks. Factory supplies were transported on return trips.

Schenley, owner of all the stock of a number of corporations engaged in the production of alcoholic liquors, or in the manufacture of accessories used in such enterprises, acted as the sales agent of its entire manufacturing enterprises, purchasing their output on a cost-plus-tax basis and reselling at a higher price. In making deliveries in its own vehicles, Schenley added a sum roughly equivalent to the rail rate in order that a uniform delivery price should prevail. The company-owned trucks carried return loads of supplies without cost.

Representatives of the for-hire carriers argued before the Commission that in both of these cases there was an element of "compensation"—hence the performance of transportation for hire.

On this point the Commission said:

"We do not believe that Congress intended that any concern which operates its own motor vehicles in bona fide furtherance of its non-carrier primary business must operate such vehicles without compensation or on a strict recovery of cost basis, or that the cost of transportation furnished should be spread equally over all output by the

Henry Jennings Is Technical Editor of Fleet Owner

In keeping with the new editorial policy of FLEET OWNER to enlarge the scope of its service to the truck industry George W. Pfeil, publisher, announces the appointment of Henry Jennings as Technical Editor.

"Hank" Jennings brings to the staff a blending of experience in the design and construction as well as the inspection and maintenance of commercial vehicles. His articles will provide FLEET OWNER readers with the latest information and trends on all phases of trucks and trailers and their application to transportation and distribution problems.

"Hank" is one of the best known men on the technical side of the truck industry, through many years of service with various companies and especially through his staff work with the Society of Automotive Engineers during the past eight years. He has served as secretary to many important SAE Technical Committees where he has come to know the men responsible for the production of commercial vehicles and those responsible for their operations among the larger fleets throughout the country. This work has brought him in direct contact with current problems, and with developments that will be coming into the operating field in the years ahead. He was secretary of such committees as those on Engines, Electrical Equipment, Trucks and Buses, and Transportation and Maintenance.

Henry Jennings

In addition to his work on the SAE staff his 26 years experience includes work with Yellow Coach, Durant Motors, and as assistant to the president of the Larrabee-Deyo Motor Truck Company. His writing experience also includes the post of Technical Editor of Commercial Car Journal.

establishment of a factory price which would in every case include delivery regardless of whether any transportation service was furnished.*** We see no statutory basis for this argument or for the argument that a private carrier may not conduct motor operations without acquiring a for-hire carrier status unless it be established that such operations are necessary to the conduct of its primary business."

In its report, the Commission interprets the previous ruling in the "Woltishek" case as establishing only one test, stating "The Woltishek decision holds that a determination of a carrier's status under the Act shall be made on the basis of its primary business and we think correctly so." It also points out that each case must be determined on its own facts, and such a finding must take into consideration all of the facts relating to the non-carrier and the carrier part of each business.

It is further pointed out that the "Woltishek" doctrine recognizes that a concern may be engaged primarily in a mercantile or manufacturing enterprise of very substantial size and yet so conduct its comparatively much smaller motor operations as to support a finding that such operations are not primarily in furtherance of the main or principal business but are for-hire carriage performed with a purpose to profit as such in the same manner as does a for-hire carrier.

Primary Business Important

In arriving at its conclusion that the principles laid down in the "Woltishek" case are sound and consistent with the provisions of the Interstate Commerce Act and that they afford an adequate basis or criteria for the determination of a carrier's status under the Act, the Commission declared:

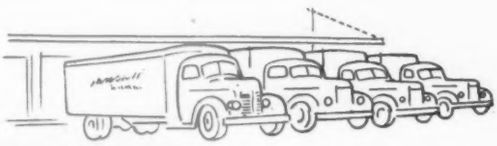
"If the facts established that the primary business of an operator is the supplying of transportation for compensation then the carrier's status is established though the operator may be the owner, at the time, of the goods transported and may be transporting them for the purpose of sale.*** If, on the other hand, the primary business of an operator is found to be manufacturing or some other non-carrier commercial enterprise, then it must be determined whether the motor operations are in bona fide furtherance of the primary business or whether they are conducted as a related or secondary enterprise with the purpose of profiting from the transportation performed. In our opinion, they cannot be both.*** We do not mean that a private carrier may not under the law realize an incidental profit in the conduct of its motor carriage without forsaking or endangering its private carrier status.*** Each case must be determined on its own facts."

The Commission's ruling, following oral argument before the entire body, found that the private motor truck operations of both Lenoir and Schenley are not those of a common or contract carrier by motor vehicles, as defined in the Act.

For private carriers: Lenoir Chair Company, Schenley Industries, Inc., National Council of Private Motor Truck Owners, Inc., Private Carriers Conference of the American Trucking Associations, Inc., National Industrial Traffic League, Southern Traffic League, Illinois Territory Industrial Traffic League, Wisconsin Manufacturers Association, Indiana State Chamber of Commerce, Detroit Board of Commerce, Tennessee Manufacturers Association, Southern Brick & Tile Manufacturers Association.

For for-hire carriers: Regular Common Carrier Conference of the American Trucking Associations, Inc., National Tank Truck Carriers of the American Trucking Associations, Inc., Contract Carrier Conference of the American Trucking Associations, Inc., Associated Motor Carriers, Inc., of South Dakota, and Rail Carriers in Trunk Line Territory (Except C&O Railway).

INDUSTRY REVIEW...



...ABOUT FLEETS.....

Two Safety Contests For Drive-Aways

Two safety contests are being conducted this year for automobile transportation fleets, sponsored jointly by the National Automobile Transporters Association and the National Safety Council. One division will be for truck-away, the other for drive-away fleets. Contest details are being discussed by R. E. Beiser, general manager, National Automobile Transporters Association (seated, left to right); Paul H. Coburn, director of the National Safety Council's motor transportation bureau; and Norman J. Bleau, safety director of Automobile Shippers, Inc. E. R. Reeves, accident prevention bureau of the National Automobile Transporters Association is standing.

• • •

Alaska Fleet Keeps Highway Open

The Alaska Freight Lines, which operates 25 trucks, has assumed the task of keeping open this winter 19 mi. of the Richardson Highway over 4,000-ft. Thompson Pass. Its snow-clearing equipment includes two special Carco snowplows mounted on 20-yd. Kenworth Model 888 trucks; two rotary plows mounted on Kenworths, and four

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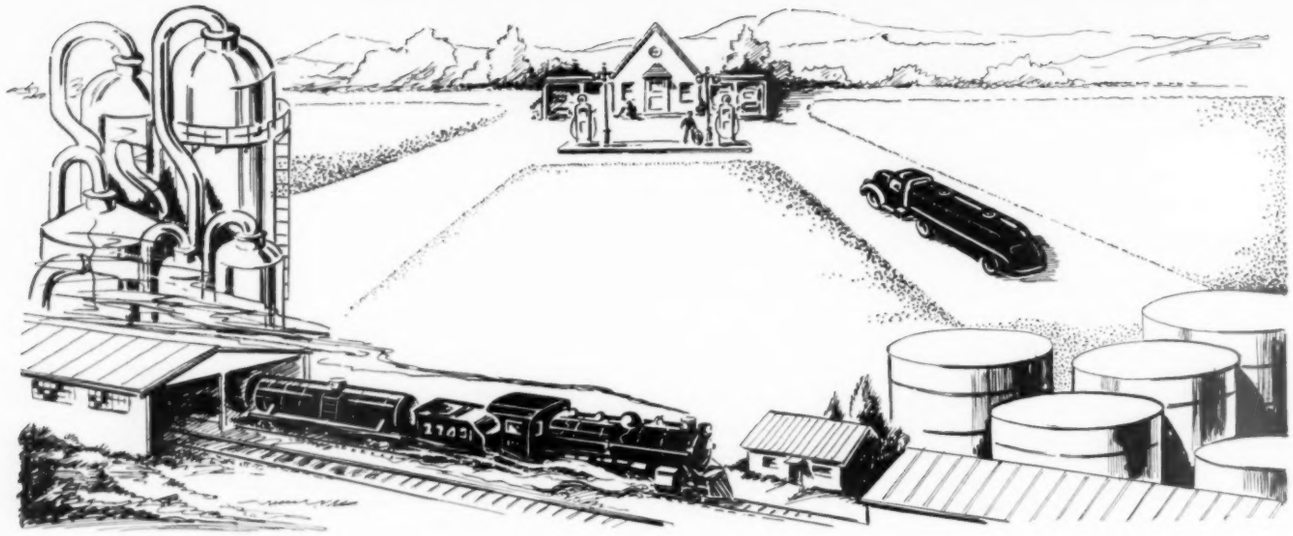


Transportation and distribution may merge when operators find new

Factory To You By Truck

by E. L. Barringer

Associate Editor

RETAIL DISTRIBUTION will be making greater and more exacting demands on the motor truck to help lick marketing problems in the immediate years ahead.

Better and lower cost distribution is quite likely to be the forthcoming dominant factor in the retail business community. In fact, distribution takes the spotlight when the going gets tough and the pressure is on to maintain a high level of business activity.

On the production side there is no question about the ability of the nation's factories to turn out goods. On the consuming side there is no question about the willingness of the average citizen to buy as long as there are a few dollars in his pocket or his credit is good. Thus, distribution faces up between these factors. When it comes to reducing distribution costs, or doing this part of the marketing job a bit better, attention turns to handling and truck operations.

A trend in this direction is already evident where retail stores schedule deliveries, on heavy or bulky items manufactured locally, direct from the factory to the consumer. Some merchandise handling of this type was in vogue before the war, and the truck industry in quite likely to experience greater use of this method of handling goods.

All Factors Involved

There are implications for all factors in the truck industry—the common carrier, contract carrier, the private fleet operator, the truck manufacturer, and the body builder. Here is how the chips may fall:

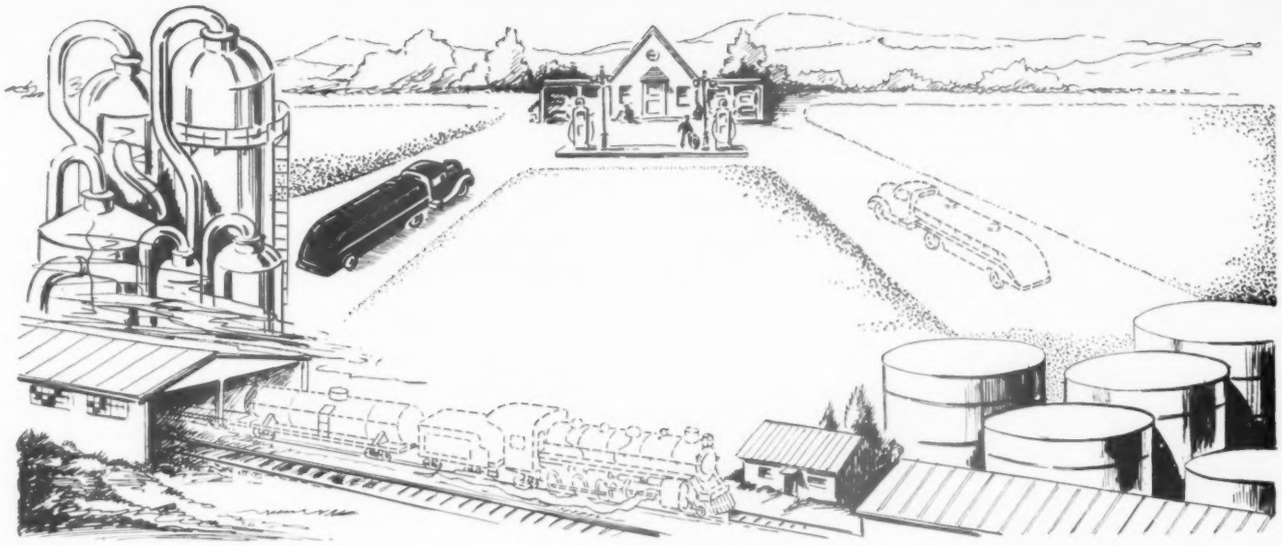
Carriers may find new business opportunities in local delivery service.

Private fleets may find an expansion or contraction in operations, depending on facilities available from for hire carriers and on services provided by other private fleets. Thus, a retail store fleet may have less merchandise to deliver, but the manufacturer's private fleet may expand to handle local distribution for the store.

Truck and body builders may find an expanding market in the light delivery type vehicle field. Also, design and engineering factors that make for faster, easier, and lower cost deliveries will be stressed such as body storage space, lay-out, steering, brakes, driver's seat, etc.

A department store, as a case in point, might work out a delivery schedule with a local manufacturer of radios and television sets. Under the old order the store would receive sets in bulk shipment from the manufacturer, warehouse them, and make unit deliveries as sales are made on the floor. Under the new order the warehouse operation is skipped entirely, as far as the store is concerned. The only shipment to the store is demonstration models. When a sale is made the order goes from the store to the local manufacturer, and the manufacturer makes the delivery either in the factory's fleet or through arrangements with a carrier.

Radios and television sets are only an example. There are many heavy, bulk items that could receive the same distribution treatment—bath tubs and other plumbing supplies, refrigerators, furnaces, wash machines, etc.



methods of shaving costs, as did early fleets hauling oil products

The picture becomes clearer by a realization that transportation and distribution may be two technical phases of merchandise movements, but in the actual marketing processes distribution in local areas may merge with transportation, and for all intents and purposes become one.

Quite often the merger of "transportation" and "distribution" comes about naturally and logically as the complete benefits of truck operations develop. This happened when petroleum product transportation took to the highway. Fundamentally, the truck brought on some startling economies in "transportation," but it was not long before the same economies flowed over into "distribution."

One of the earliest motor transport movements of petroleum products developed in Nebraska. Here was an agricultural state, using large quantities of fuel, with a natural source of supply in a group of oil refineries nestled in the central, southern part of Kansas, the next state to the south.

The traditional handling method was to transport gasoline by rail tank car to a bulk plant, store it in tanks, and load tank trucks for deliveries to the highway gasoline service stations, garages, or direct to the farms.

The railroad lines in both states run mainly in an East-West direction, radiating from the biggest cities which happened in both Kansas and Nebraska to be on the extreme eastern part of the state. Thus, rail tank cars from refineries in the center of Kansas were hauled East to Kansas City, North up the Missouri River valley to Omaha, and then westward to destinations in Nebraska. It took days, or weeks, for an 8,000 or 10,000 gallon tank car to make the trip. Bulk plant storage tanks had to be able to handle a full tank car, plus the usual working storage. The marketer had an investment in storage tanks and inventory, and had to order well in advance to insure having enough gasoline.

Trucks Haul Direct

Somewhere along the line someone thought of using motor trucks instead of railroad tank cars to transport gasoline from the refinery to the bulk plant. The highway route was much more direct. From the refinery the truck headed North on the nearest main highway and once over the state line in Nebraska it turned towards home base.

Advantages were immediately evident. First, it took only a day or so for a one-way trip, against days or weeks by rail. Second, semitrailers of about 2,500 or 3,000 gallons were used, so inventory was considerably less. With quick, direct truck movement, the oil marketer moved a truck load of gasoline into his territory and converted it into cash long before a tank car from the same point of origin could be spotted at the bulk plant siding.

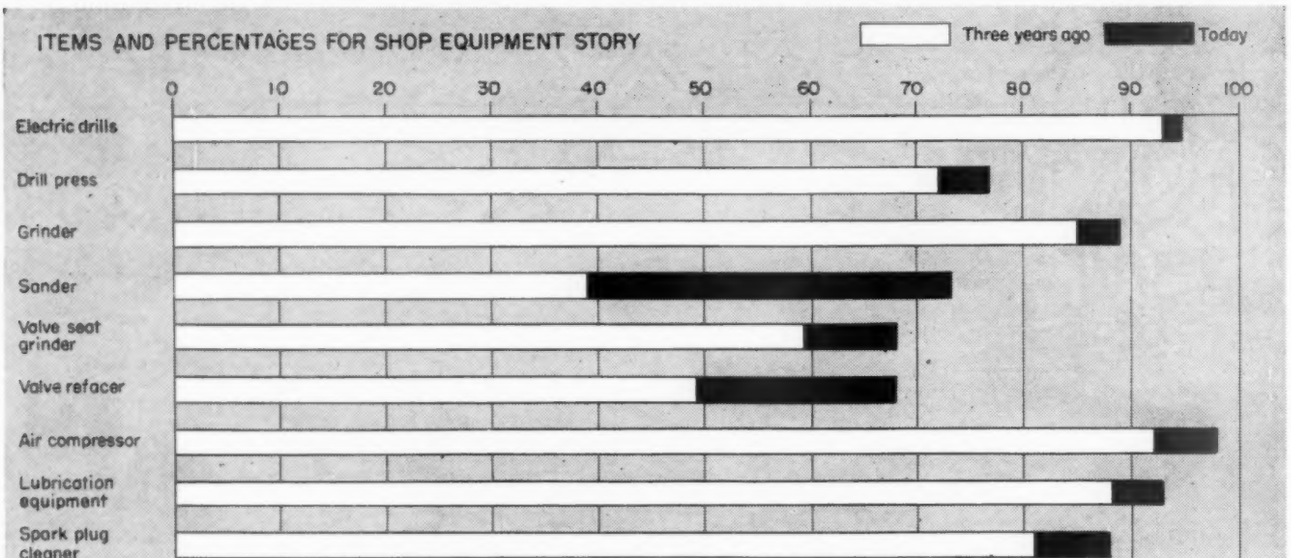
All this was straight transport—the motor truck merely replacing the tank car. It was only a matter of time until distribution came into the picture. Instead of unloading the 3,000 gallon semi-trailer into a bulk plant in the afternoon, and hauling away a 750 gallon load the next morning in a small delivery truck to a gasoline station a few blocks away, marketers began unloading the over-the-road trailers direct at the service station. All that this required was a bigger storage tank at the service station, enough to hold a load plus working inventory, or a load could be split between a number of stations. In some cases marketers closed their bulk plants completely. All transport loads were dumped in service stations, and these stations in turn filled smaller delivery trucks for hauling products to nearby farms.

This picture illustrates how management has merged transportation and distribution, thereby reducing inventories, cutting down on warehouse handling and its attendant losses, and doing the same overall job at a lower cost.

All such changes in distribution involving the motor truck mean:

(1) More business for motor transport, hence greater demand for trucks and specialized equipment.

(2) More attention by carrier and private fleet operators to shifts in potentials to be prepared to meet the demand of business. **END**



More Tools For Fleet Maintenance

Fleet Owners Survey Shows Trend in Shop, Hand Equipment

FLEET OPERATORS are equipping repair departments and maintenance shops with more tools and service equipment, evidence that there is an improvement in the inspection and repairing of fleet vehicles. This fact is shown in a comparison of a recent FLEET OWNER Shop Equipment survey with one conducted three years ago.

Here are some of the highlights:

- More fleets have testing equipment for checking engine performance.
- More fleets have air and electrically operated tools.
- More fleets have lube equipment.
- More fleets have battery chargers, welding equipment, and other tools for engine maintenance.

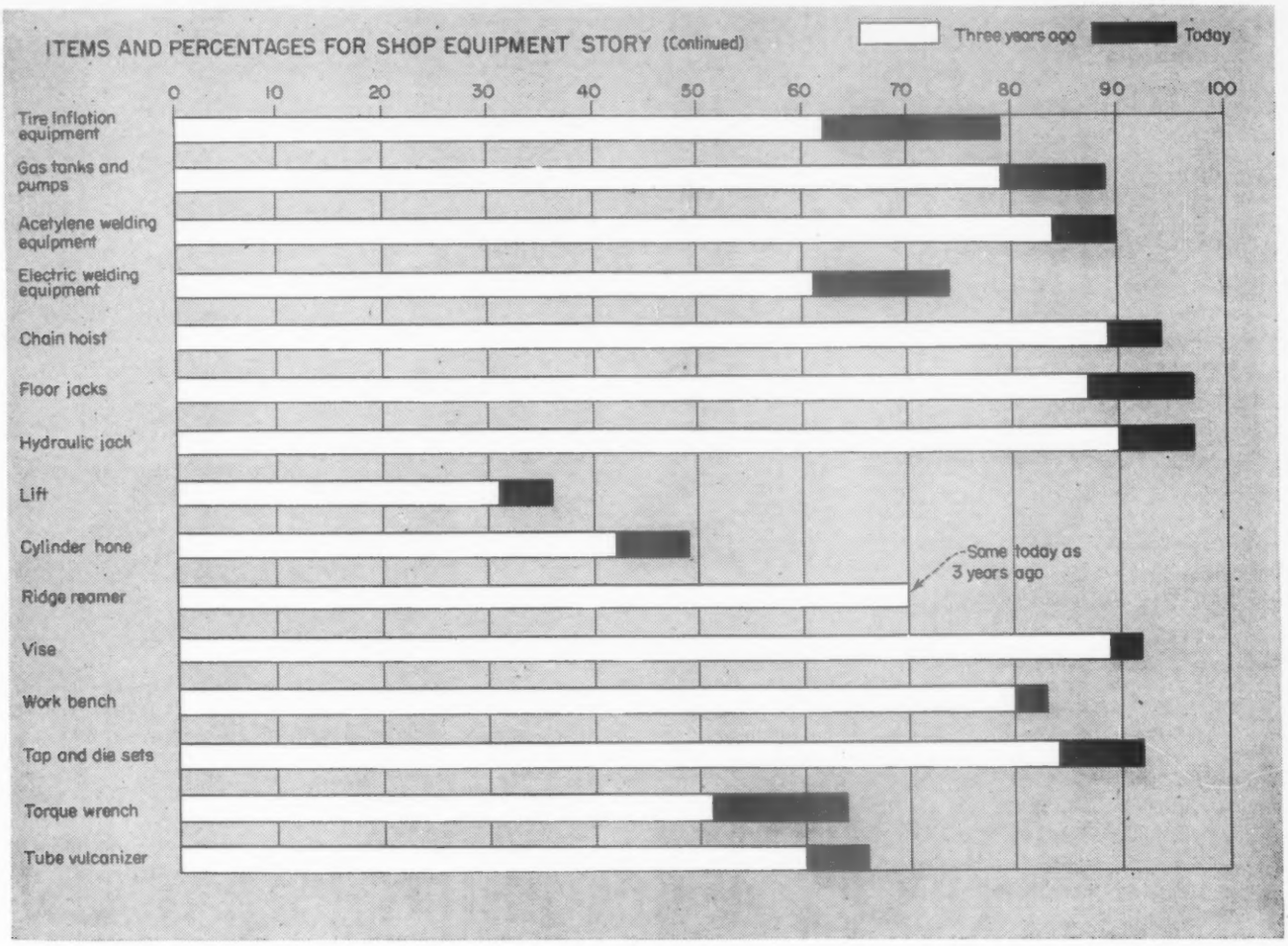
The survey also shows a trend in hand tools, towards the shop furnishing this type of equipment rather than the mechanic owning his tools.

About half the fleets, with 10 to 24 vehicles, in the current survey provide the hand tools for mechanics. Three years ago only 31 fleets out of every 100 in this bracket provided the hand tools. In fleets with 25 to 49 vehicles, about half now provide hand tools, and three years ago the ratio was only 39 shops out of a 100.

More Shops Furnish Tools

Larger size fleets show a less pronounced trend, percentage-wise, but there has been a shift away from the mechanic bringing his own tools. In fleets of 50 to 99 vehicles 26 out of every 100 now provide these tools, against 23 out of a 100 three years ago. Fleets with 100 or more vehicles have a comparison record of 16 out of every 100 providing tools now, against only 10 out of a 100 doing so three years ago.

The practice of the mechanic owning his own hand tools stems from the early days of the automotive repair industry, but shops are finding numerous advantages in getting away from this practice and providing the proper hand equipment. The shop ownership program makes uniform tools available, so workmen on a given type of job are using the same type of tools. If the mechanic owns his own tools there is no control over using the wrong tools, and there is the danger of damaging engine parts as well as personal injuries in case the tool slips or breaks. With shop-owned tools the correct tools are made available, so there are safer working conditions for all the mechanics. Also, there is easier tool



inspection and maintenance with uniform equipment throughout the shop.

The Shop Equipment survey three years ago showed many fleets needed new equipment, and replacement items. This obviously was on account of the war. At that time new tools and service equipment were becoming more readily available. Since then, the current survey shows, more operators have purchased equipment, for replacement and for enlargement of shops.

Engine testing equipment is a case in point. Inspections start with a determination of the efficiency of the engine and its component parts. Testing equipment is useful, also, in checking after parts are repaired.

Three years ago 57 out of every 100 shops in the survey reported having an ignition coil tester. Currently there is a coil tester in 64 out of every 100 shops. A condenser tester was in 53 out of every 100 shops three years ago; now there is one in 64 out of 100 shops. Battery cell testers were in 82 out of every 100 shops three years ago; now there is one in almost every shop—in 95 out of 100 shops.

Air and electrical tools are valuable aids in modern maintenance work. Labor charges are high, compared with prewar wages, and one way to make higher wages pay out, with reasonably low costs, is to provide power tools, making the mechanics more efficient. Power tools also make the job easier, and there are plenty of jobs around a truck engine or chassis that represent sheer back-breaking work, done by hand, that become much easier with a power tool on the job.

Spray Guns in More Shops

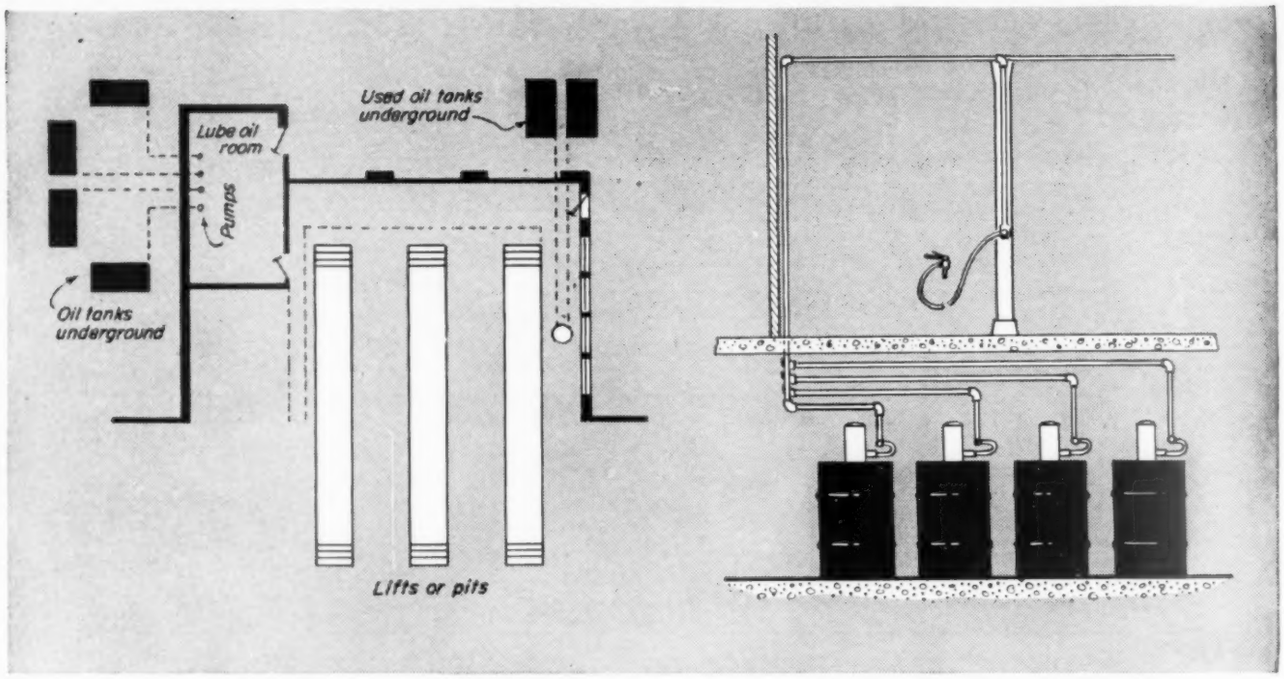
The sander, for instance, was in 39 out of every 100 shops three years ago. Now that ratio has been remarkably changed—the current survey shows sanders in three out of every four shops. Paint spray equipment also is on the increase. Three years ago 72 out of every 100 shops had this equipment. Today four out of every five shops have a sprayer. Grinders also have come into greater use. Spark plug cleaners also are being used more—three years ago 81 out of every 100 shops had them, now 88 out of every 100 shops.

Lifting and handling equipment use is on the upgrade also. Here is a comparison of some items, showing the number of shops that had this equipment three years ago, and now, the figures showing the number of shops so equipped out of 100:

	Three Years Ago	Currently
Lifts	**31**	**36**
Chain hoists	**89**	**94**
Floor jacks	**87**	**97**
Hydraulic jacks	**90**	**97**

Both surveys were made by listing over 200 items of shop equipment. The fleet superintendent checked off those items in the shop—as to having such equipment, not as to the number of each item in the shop.

The survey included replies from 446 fleet shops, of which 65 percent had 50 or more vehicles. Geographically, 35 states and Hawaii are represented, and the trucks are used in 21 vocational classifications. The 446 fleets have over 77,000 vehicles, or an average of 174 per fleet.



SUGGESTED LAYOUT for lubrication department; materials are handy for mechanics. Plan at left has underground storage for new and drained oil. Piping arrangement at right handles oil from basement storage to service bays.

There's A Big Difference Between Greasing and Lubrication

Proper equipment pays off in conserving engine power for the drive wheels

"WHAT KIND OF A SERVICE JOB are you getting from your lubrication department?"

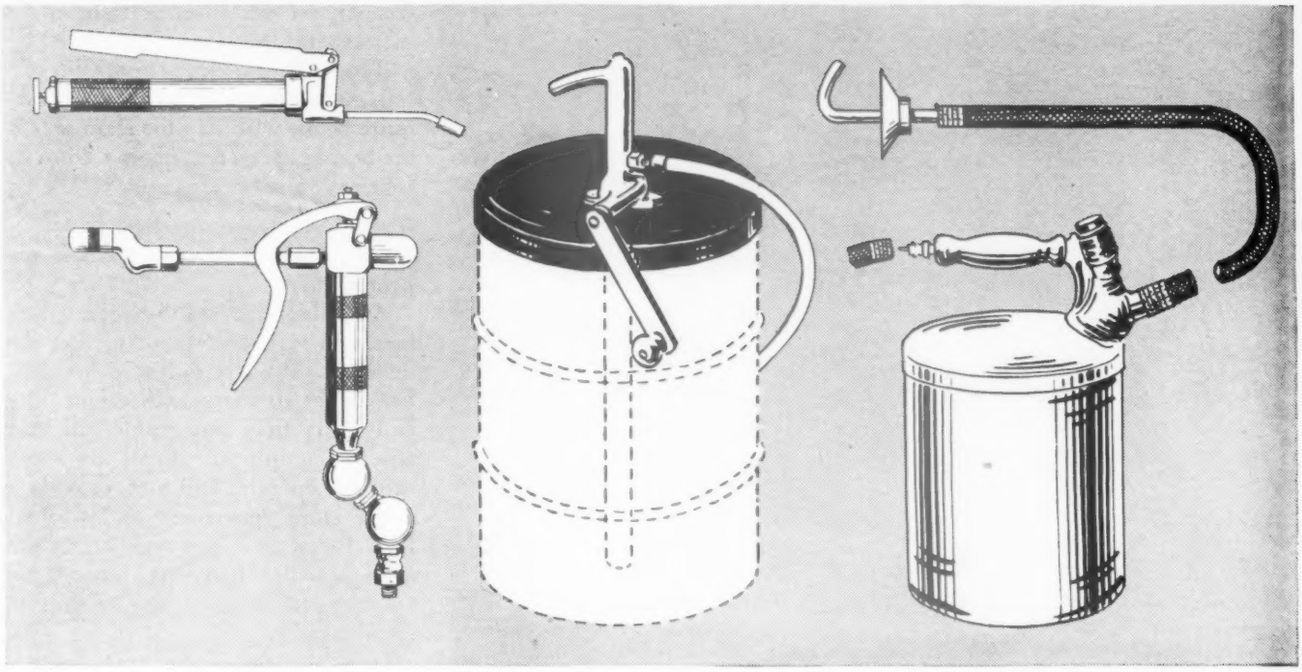
Correct lubrication has such a profound effect on overall fleet operation that the answer to this question deserves careful analysis. There is a difference — a big difference — between an ordinary grease job and an efficient lubrication operation. An efficient operation is a rigidly scheduled service given each unit on a mileage or time basis interval, with all points handled in accordance with the letter and spirit of the manufacturer's recommendations.

Then there is the plus factor in an efficient operation. It is the opportunity to carefully inspect the vehicle. Aside from refueling, checking the crankcase oil level and radiator level, lubrication is the most frequently performed service. A good lubrication man is observant in going over the chassis, gears, and engine compartment, noting any obvious defects.

Set up lubrication department for production

Actually the fleet lubrication problem should be approached with the objective of obtaining the most efficient, all-round good job. Proper lubrication of all moving parts will help cut operating costs by reducing friction to a minimum, making the greatest proportion of power available for rolling the unit over the highway. Engine power lost in overcoming friction costs money, and an effective lubrication program will save money on every mile of operation.

Efficient production should be the theme behind the planning of the lubrication department. The space allotted should be sufficient to permit an orderly flow of traffic both in and out of the area. Time lost in useless jockeying of equipment back and forth reduces the number of units that can be handled in a given time. Also, there should be sufficient space to permit working on one unit without interfering with any other units in the department. This means that



LUBRICATION EQUIPMENT for better servicing of fleet vehicles with several types of guns (left); and a lubricant dispenser that fits over a 100 lb. drum container (center); while at right there is an air-operated portable gear flusher.

space in the working area should be allotted on the basis of how many units must be serviced at a given time.

Following this same line of reasoning, lubrication equipment should be provided on a unit basis. If four trucks are to be serviced at a given time the shop should be equipped with four complete sets of lubrication equipment.

A time study will quickly prove how costly is the sharing of lubrication equipment between two or more lubrication centers. Whenever a mechanic has to hold up a job to wait for another man to finish with a tool, or to walk away from the job to obtain a "shared" gun—that's when inefficiency creeps in and costs rise.

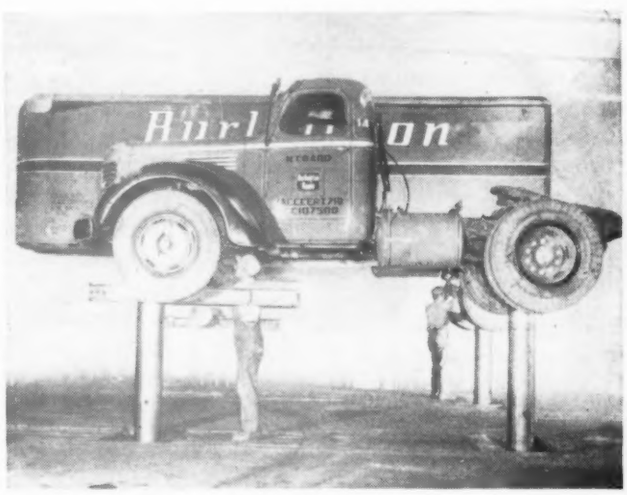
The exact make-up of the lubrication department needed in each individual shop is a problem that must be considered in the light of the peculiar needs of each shop.

Frequency of lubrication Governs Equipment Needs

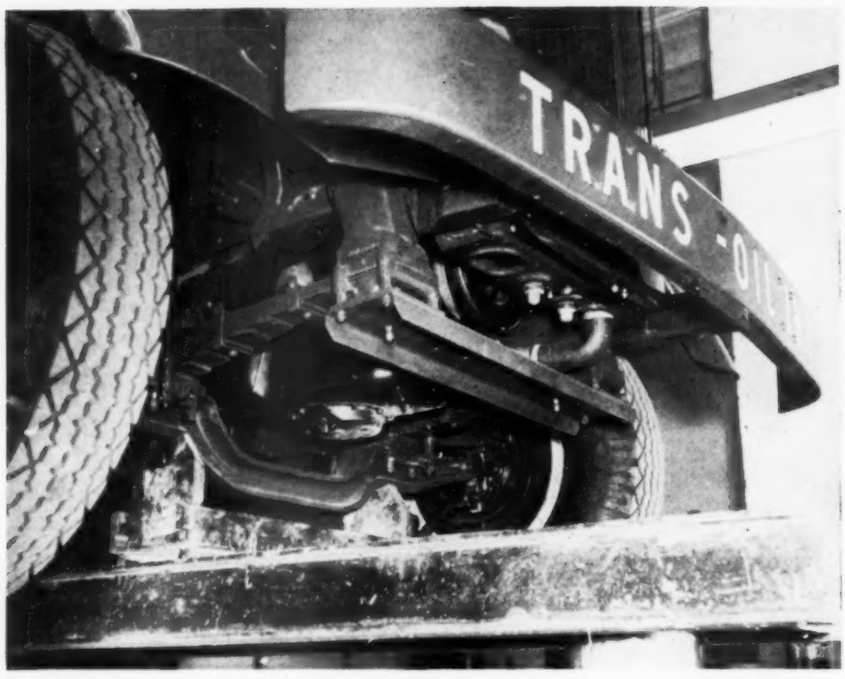
The use of the lubrication department, figured in the actual number of lubrication jobs per week or month, will have an important bearing on the physical make-up of the department.

The basic factor here is the interval hicle. The fundamental figure is individual, depending on the operation or type of service given the vehicle. The fundamental figures is 1,000 miles of service on chassis points. In the case of low daily mileage vehicles, it would take weeks or months to reach this figure, so lubrication may be predicated on a time interval such as once a week, or once every other week. Schedules may be such, in some cases, that mileage does not work out, so the unit is lubricated at the end of each run, or on some

OIL TRANSPORT—tractor and semi-trailer—goes up as a unit on hoist for thorough inspection and lubrication job.



DOUBLE HOIST installation, one for tractor, one for trailer, permits handling of combination as separate units.



HOISTS have many uses in fleet shops, such as inspection of underparts. Note accessibility of front end of tractor.

Lubrication (continued)

other interval based on the operation.

To arrive at a formula for illustrating the point, let us assume vehicles are serviced at 1,000 miles. The number of lubrication jobs actually required will be the number of fleet miles travelled in a particular period, divided by 1,000.

The next step is to determine how many lubrication jobs must be completed during each available service hour. If lubrication is handled as an individual job assignment, the number of lubrication jobs per hour can be determined as follows:

Divide the number of lubrication jobs needed in a given period by the number of hours the fleet units are available for service.

Now the question arises, "How many man hours are required to lubricate each fleet unit?" This also brings up the question of type and size of fleet unit, and obviously the figures will vary with the equipment being serviced. Table No. 1 shows how many fleet units can be lubricated during a 40-hour week.

TABLE NO. 1

Lubrication Production Chart
(One hoist, one man operation)

Lubrication time per fleet unit (minutes)	Number of units per 40-hour week
90	26
60	40
55	43
50	48
45	53
40	60
35	68
30	80

The foregoing figures have been based on a one-man operation. However, similar production figures could be developed on a two, three, or four man crew basis. A few essential time study figures which can be gathered easily will reveal how much lost time results because of insufficient equipment or improperly located equipment. An up-to-date time study analysis of lubrication operations generally will go a long way towards improving lubrication service.

Correct equipment is essential

To a large extent, lubrication equipment is the governing factor in the amount and type of service. Correct equipment is essential from the standpoint of speed as well as quality of work. This statement is borne out by the fact that even relatively small fleet shops have a need for a rather complete assortment of lubrication equipment. In the small shop lubrication usually is handled by mechanics who perform other maintenance and repair operations as well. Proper equipment is required both to maintain the quality of the job, and to hold to a minimum the time required for lubrication service. Here, again, efficiency in handling the lubrication job is important because the mechanic's time must cover a number of maintenance services.

The following equipment, with certain modifications to fit individual requirements, will help the shop obtain the best in speed and quality from its lubrication service:

Hoists—A most important factor in correct lubrication equipment is the proper hoist.

Advantages gained by correct size hoists have definitely outmoded the open pit. Pits are potential accident hazards at all times, and serious falls and costly fires may result with this type of equipment. Hoists are much safer to operate, and also provide a much more convenient and efficient level for work. New-type hoists are available for handling the bigger tractors and semi-trailers as well as smaller units.

Once up, the entire under-section of the unit is readily available for inspection or maintenance operations. The mechanic has ample freedom of movement. He can carry out the required work operations without being subject to the confinement of a pit.

Time and motion study engineers point out that a mechanic and his work must be in the correct position to promote the most efficient operation. This is true particularly in the lubrication department. Some means should be provided to permit the work being placed at the correct height for all operations. The safest and most practical way to accomplish this objective is with heavy-duty hoists especially designed for shop installations.

In addition, hoists are being installed for repair and rebuilding operations as well as for lubrication with excellent results. Among the many advantages gained from the use of hoist installations are:

1. **Work can be performed from floor level.**
2. **Unit can be raised to correct working height.**
3. **Accident hazard of pit is eliminated.**
4. **Lighting, heating, ventilation, and drainage are improved.**
5. **Fire hazards are eliminated.**
6. **Improved supervision and inspection are possible.**
7. **Better workmanship is encouraged.**
8. **Less time is required for service operations.**
9. **Maintenance costs are reduced.**

A review of the list of advantages will bring out the fact that the cor-

(*Continued on page* 132)

LITERATURE REVIEW

701. Electrical Manual

"Electrical Equipment Maintenance and Operation Manual" is a 218-page book in color which tells in simple language the makeup of each of the seven basic electrical circuits on an automobile and how to service the parts of each circuit.

The manual, as an Auto-Lite publication, is built around Auto-Lite units and the test specifications and adjustments cannot be applied to units of other manufacturers. The general information, however, is applicable for all installations. The price is $1.75 per copy plus postage.

Published by the Electric Auto-Lite Co., Champlain & Mulberry Sts., Toledo 1, Ohio.

702. Sizes and Weights

"Truck & Trailer Size and Weight Restrictions" lists all laws affecting the size and weight of trucks, trailers, and truck-trailer combinations for 48 states and the District of Columbia. The condensed information tells the truck operator what new laws will affect his truck and load upon crossing any state border. Permissible axle loads, length of trailers, overall lengths, number of trailing units, total gross loads and all other regulations affecting truck operations are covered.

Published by the Four Wheel Drive Auto Co., E. 12th, Clintonville, Wis.

703. Metalizing Worn Parts

"Metco News," Nov., 1949, contains a report on metalizing worn parts. In this edition are a number of reports of how a number of companies have saved money using this process. Additional applications suggested by the manufacturer are: axle shafts, brake drums, cylinder liners, glands sections, plungers, lathe beds.

Published by the Metalizing Engineering Co., Inc., 38-14 30th St., Long Island City 1, N. Y.

704. Floor Care

"The Proper Care of Floors" discusses every type of floor and floor surface, the company states. The 32-page booklet is divided into two parts. Part 1 covers the triple process of floor preservation: cleaning, sealing, and maintaining. Part II discusses all types of floor surfaces, new and old, and the proper methods of maintenance.

Published by the West Disinfecting Co., 42-16 West St., Long Island City 1, N. Y.

705. Precision Tools

"Precision Tools" is a booklet describing a number of tools and their uses. The booklet contains information on how to: check cylinder bores, fit new pistons, check bearings and piston pin holes, check clearances, find diameters, check threads, cut metals and find the right drill.

Published by the L. S. Starret Co., Crescent St., Athol, Mass.

706. Lubrication Guide

"Veedol Guide" is a 20-page booklet giving lubrication information on all makes of cars and trucks. The booklet contains chassis diagrams drawn to scale showing the exact location of every lubrication point and telling what lubricants to apply and at what mileage intervals to apply them.

Published by the Tide Water Associated Oil Co., 17 Battery Place, New York 4.

Twenty-four million square feet of glass, enough to enclose all the major league ball parks in a glass house as high as the Washington monument, is used annually by America's trucks.

707. Otiscoloy Steel

"The Transportation Steel," describes Otiscoloy, low alloy high strength steel widely used in the transportation industry. The 32-page booklet gives complete technical data including physical properties of Otiscoloy. It also contains excellent illustrations of fabricating operations and finished products. Industrial applications covered in the brochure include: the manufacture of trailer trucks, buses and light trucks, tank semi-trailers, dump trucks and road machinery, power shovels and cranes, shipbuilding and dry-dock repair, mining equipment, building materials, and miscellaneous uses.

Published by Jones & Laughlin Steel Corp., 492 Jones & Laughlin Bldg., Pittsburgh 30, Pa.

708. Paint Spraying

"Handbook for Paint Spraying," a 24-page booklet, gives tips on sprayers, compressors, guns, and nozzles. The directions for spraying cover: the mixing of material, making the pattern, triggering the gun, overlapping and protecting surfaces which are not to be sprayed. A special section shows common spraying faults and remedies.

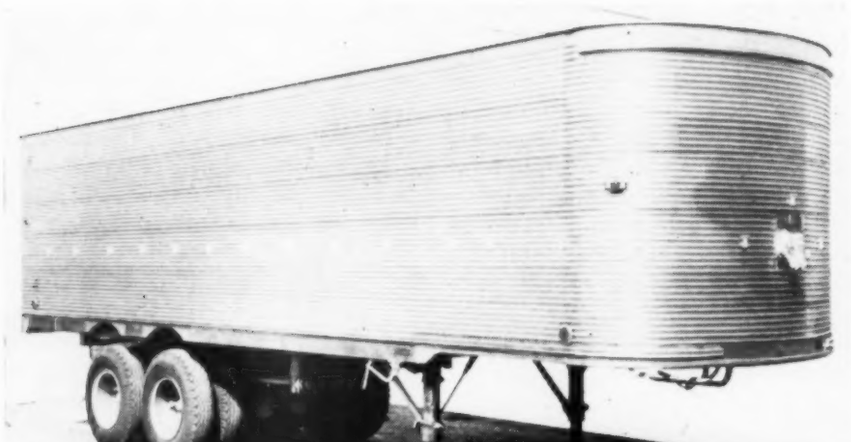
Published by the Electric Sprayit Co., 1415 Illinois St., Sheboygan, Wis.

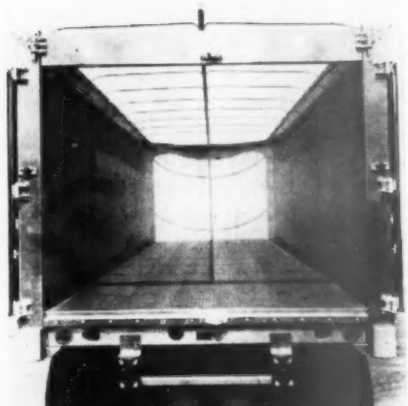
709. Hardening Mild Steel

"Treating Carbon Steel with Activated Carbon-Chromium Hardening Compound" covers a study of the definite effects of "Hi-Speed-It" steel hardening compound on the simplest form of carbon steel. The company states: "It is our intention to present in subsequent bulletins further detail studies used in the treatment of all manner of tools and machinery."

Published by the Wilson Carbon Co., Inc., 60 East 42nd St., New York 17.

NEW PRODUCTS
FOR TRUCK AND SHOP





101. Fruehauf Trailer

Latest addition to the line of trailers produced by the **Fruehauf Trailer Co., 10940 Harper Ave., Detroit 32, Mich.**, is a stainless steel open-top van. First models are a 32 ft. long with full magnesium floor.

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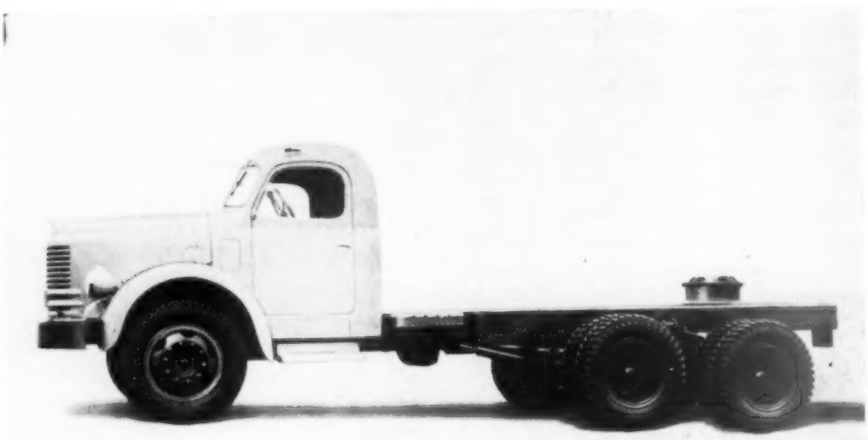
102. Reo Tandem Trucks

Production of a new series of tandem trucks is announced by **Reo Motors, Inc., 1331 S. Washington Ave., Lansing 20, Mich.** Powered by the Reo's new 331 cu. in. Gold Comet gasoline engine, the new series rounds out a complete line of Reo tandem models with gross vehicle weights ranging from 28,000 to 57,000 lbs. The new trucks in the Model E-226 series are rated at 34,000 lbs. gvw.

The new tandem trucks are available in five wheelbases ranging from 150 to 203 in., and with hydraulic or full air brakes.



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Shipping Cartons
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Flares
Tire Guards
Testers
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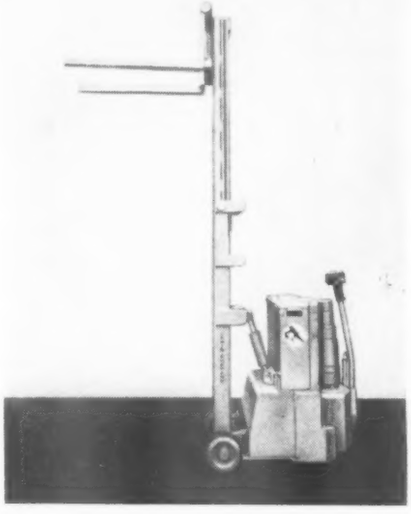
Connector Boxes
Brake Bonders
Axle Assemblies

103. Electrical Connectors

A new line of packaged electrical connectors is being marketed by the **Burndy Engineering Co., 107 Buckner Blvd., N. Y. 54.** These Hydent indent-type connectors are one-piece, and have pure copper terminals. Splices and disconnects are indented onto wires with a Hytool that cuts the wire, strips the insulation, and closes the insulation grip of the connector.

An outstanding feature is the insulation grip, which, the company states, provides the necessary dampening of vibration to prevent wire breakage and fraying of the insulation. The one-piece construction removes danger of splitting the connector while indenting, which can be done anywhere on the circumference of the connector barrel. Wire ranges accommodated are No. 20 through No. 10 primary gages, requiring two connector sizes and a single connecting die.



104. New Jackstacker

A counterbalanced fork type jackstacker, designed for loads up to 100 lbs., 48 in. long, is announced by **Lewis-Shepard Products, Inc., 265 Walnut St., Watertown, Mass.** It is made in telescopic and non-telescopic models, with fork elevations up to 130 in., and is 46½ in. long less forks. The compact design of this jackstacker makes it ideal for use in confined areas and where aisle space must be kept to a minimum. A shaft mounting permits the forks to be quickly hinged back over the truck.

105. Parking Lot Heater

Everybody talks about the weather and, finally, someone has done something about it. **Tropic-Aire, Inc., 4501 W. Augusta Blvd., Chicago, 51,** is now marketing a parking lot heater capable of heating 10 vehicles.

A vapor car hot water heater, the type used by railroads, is used to generate 250,000 Btu per hour which maintains water temperatures between 125 and 150 deg. F. After being heated, the water passes into a supply manifold by a positive displacement type pump having a capacity of 35 gallons per min. This is controlled by a pressure regulator which by-passes anything in excess of this pressure to a 40-gal. surge and storage tank located in the top of the cabin. Each outlet of the manifold has a length of hose and a "Y" connection arrangement which provides two hot water feed outlets for each vehicle.

Connection to the vehicle is made through two self-sealing couplings. One branch feeds the radiator and surge tank system while the other feeds the vehicles block. After passing through the engine block, the hot water is returned to the heating unit by means of a hose and coupling.

Designed to protect 10 vehicles, the unit is fully automatic. The fuel used is No. 1 fuel oil although heavier grades can be used. Under continuous operating conditions and low temperatures, the unit uses three gal. of fuel per hour. Since the only connections necessary are two electric outlets, the unit is portable. One connection is needed for the 220-volt, three-phase, two hp motor used to drive the circulating pump and supply air for the heating unit. A 110-volt, single-phase circuit is required for the controls.

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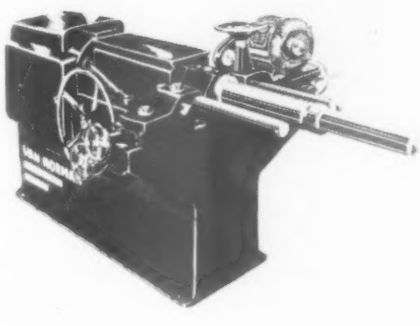

106. Brake Drum Lathe

Brake drum lathe, No. 310, is now being manufactured by the **Van Norman Co., Springfield, Mass.** It is designed for use on the heaviest drums, up to a maximum dia. of 24 in. and maximum width of 15 in. In addition to turning and grinding at the same time an optional feature permits two turning-tool cuts at one time.

(Continued on next page)

NEW PRODUCTS (continued)

107. Steel Shipping Containers

Steel containers designed to eliminate damage and pilferage are being produced by the **Dravo Corp., Neville Island, Pittsburgh 25.** The 275 cu. ft. steel boxes were used recently in the export shipment of 2,125 cartons of pharmaceuticals. The company reports that the shipment, which weighed 11½ tons, included several types of products in jars, tubes and bottles. Out of the entire consignment, only two jars were broken despite the fact that the cargo was packed only in cardboard cartons.

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108. Cluster Lights

A new line of weatherproof, aluminum cluster lights and accessories is now being manufactured by the **M. B. Austin Co., Northbrook, Ill.** A completely wired lampholder, for use with PAR-38 lamps, is fitted with a removable gasketed back plate for easy socket replacement. This lampholder tilts to any position.

Raw materials from every state go into the 1,100,000 new trucks and 50,000 new trailers bought annually by the trucking industry.

109. Electric Brake Bonder

An electric brake bonder is now being manufactured by **James C. Heintz & Co., Inc., 3738 W. 143rd St., Cleveland, Ohio.** The advantages incorporated in the machine, the company states, are: a pressure application feature, accurately controlled heat, strength of the bond, speed and simplicity of operation.

Bonding is accomplished by confining the assembled shoe, bonding agent and lining between a pressure band and heated anvil. The tendency of the bonding agent to flow under the combined effect of heat and pressure is compensated with the pneumatic follow-up action of the anvil, which maintains a constant pressure of 200 lbs. or more per sq. in. of lining surface. Cure is completed in four to seven minutes, depending upon lining adhesive manufacturers specifications.

Both four-shoe and two-shoe models are offered. They are bench models measuring 17 in. wide, 21 in. deep and 20 in. high.

110. Two New Truck Tires

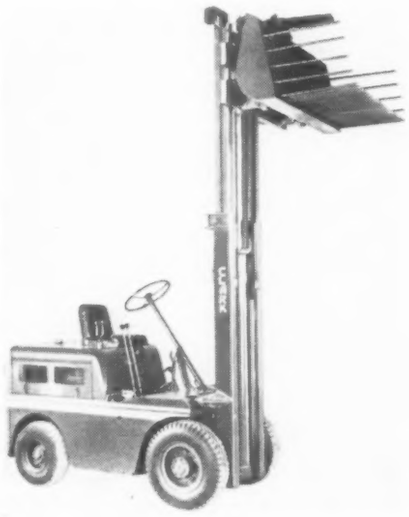
The Super Chief, designed for greater traction and non-skid with vented shoulders for cooler operation was one of two new truck tires announced by the **Mohawk Rubber Company, Akron, Ohio.** The Super Chief truck tire is an extra tread heavy duty large truck tire developed for long mileage service. Company officials state that the tire has been tested in key spots throughout the country on many types of equipment with success.

Mohawk's Big Chief truck tire, announced simultaneously with the Super Chief, is especially designed for excavating, logging, mining and general off the road operations.

Rugged in construction and appearance, the Big Chief is engineered for on the job versatility, performing equally well in on or off the road special service assignments.

111. Flare

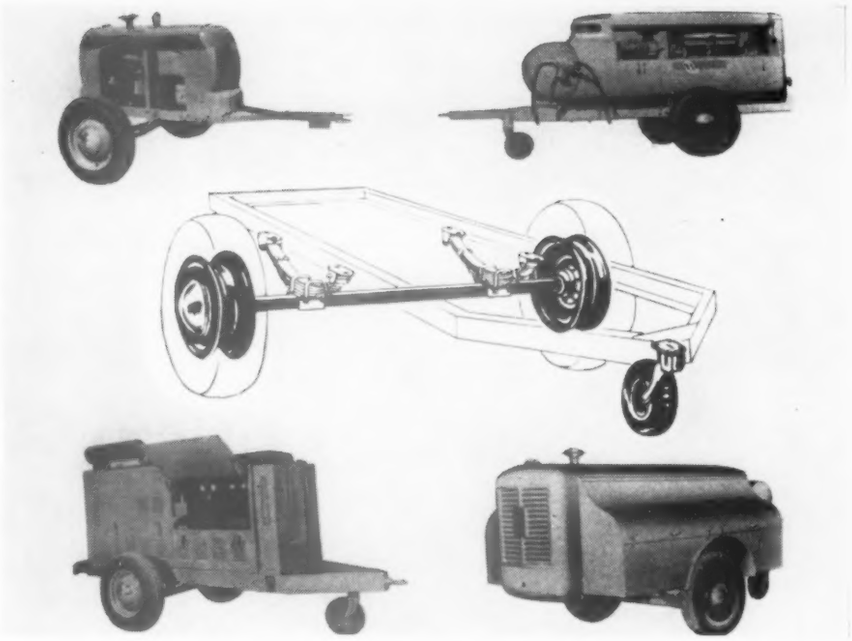
The Foco Flar, latest addition to the Anthes line of truck safety equipment, has been announced by the **Anthes Company, Ft., Madison, Iowa.** Foco Flars utilize the #300 Trilite Lens made of DuPont Lucite. Reflectors are completely protected when mounted and fit snugly in the case-base bracket, greatly reducing rattle and entry of dirt and moisture. A theft-proof, locking cam unit holds the flares in the bracket but permits quick removal. The Foco Flar is simple to set up on the highway. The reflecting units swing easily from the carrying position and lock in the upright position.



112. Grading Fork Attachment

A gravity-dump grading fork attachment for handling of bulk materials too large to pass through a 2½-inch screen has been introduced by **Clark Equipment Co., Battle Creek, Mich.** The attachment is applicable to all models of Clark fork-lift trucks of 2000 lb. capacity and up, and is readily interchangeable with standard forks and attachments for mounting on standard uprights or Clark's Hi-Lo-Stack.

The fork has ¾-in. dia. removable tines spaced on 1-in. centers which makes it comparatively simple to change the time-spacing for handling coke, coal of larger sizes, sugar cane, vegetables, hides, stockyard litter, bones, corn cobs and similar materials. The tines enter the material more readily than a shovel, thus requiring less tractive effort.



113. Axle Assemblies

Complete packaged kits of Caravan two-wheel single-axle assemblies is announced by the **United Manufacturing Co., 32 W. Interstate St., Bedford, O.** Shipped ready for attachment, these new units have been designed to provide mobility from less than 1000 lbs. to more than 7000 lbs.

Each Caravan two-wheel unit consists of two hub and wheel assemblies, two leaf-springs, side-frame or underframe mounting brackets, and a lunette or clevis-type witch. In addition Caravan units can be supplied with 11, 12, or 14 in. brakes; automatic brake control device; and a front (third wheel) landing gear assembly that provides a steady rest and facilitates manual positioning of a loaded trailer when unhitched from the towing vehicle.

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114. Tire Safety Device

A tire inflating safety device is being marketed by the **Jergens Tool Specialty Co., 712 E. 163rd St., Cleveland 10, Ohio.** This device is designed to prevent serious accidents when installing, removing, inflating or deflating any tire on snap ring type rim. It consists of two chain slings which are joined by metal cross bars.

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The number of Class 1 truck lines — those with gross revenue of $100,000 or more annually—has increased in one decade from 1,030 in 1938 to 2,500 last year.

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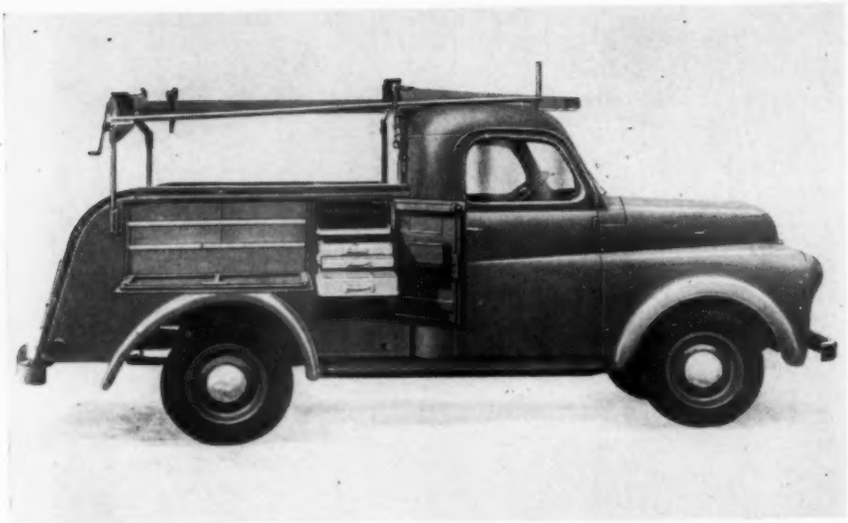

115. Public Utility Body

Model 4978, public utility body, designed for installation on a standard ½ ton chassis, is now being produced by the **York-Hoover Corp., Linden & Belvedere Sts., York, Pa.** The body is constructed of coated steel sheets, formed and joined by arc welding. Outside dimensions are: length—78 in. overall; width—59 in. outside; height—40½ in. The net body weight is 975 lbs. including the ladder bracket.

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116. Truck Directional Signal

A truck directional signal device, designated at "920," which meets all SAE and state requirements for Class A signals is being manufactured by the **Yankee Metal Products Corp., 31 Grand St., Norwalk, Conn.**

Required in all trucks over 80 in. in width, the complete set consists of: two lamps with red lenses for the rear; two lamps with amber lenses for the front; a finger tip control switch unit; flasher and all hardware necessary for complete installation.

The "920" is made of steel and is finished in black baked enamel. The reflector is silver plated on brass, is sealed against moisture and dust and reflects light in excess of all state requirements. The new specifications eliminates the use of the arrow and uses the flashers to denote intention to turn.

117. Spark Plug Tester

A new spark plug tester, designed to show the efficiency of new and used spark plugs, is now being marketed by the **Champion Spark Plug Co., Upton Ave., Toledo 1, Ohio.** Called Model 1000 Comparator, it can be mounted on bench or wall. The Sparking Comparator on the top of the unit gives the user at a glance the efficiency of the plug being tested.

BRIEFS

Ansul Chemical Co., Marinette, Wis., has published a 20-page catalog illustrating the complete Ansul line. The booklet illustrates improved Ansul Model B Extinguishers, piped systems, large stationary units, fire trucks and trailers. . . . **Hunt-Spiller Manufacturing Corp., 383 Dorchester Ave., South Boston 27, Mass.,** announced recently that they have re-entered the brake drum manufacturing field with a new material that eliminates heat-checking in almost all cases and substantially reduces squeal. Basically, the new material is a high-carbon alloy of gun iron, an air furnace iron produced by Hunt-Spiller. Complete information on the drums can be obtained from the manufacturer.

* * *

Elkay Products Co., 323-27 W. 16th St., New York 11, has published a new catalog, No. 100, on moving and warehouse supplies. The booklet contains over 250 items that are every day necessities for moving, shipping, packing and protecting furniture and equipment. . . . **The Meyercord Co., 5323 W. Lake St., Chicago 44,** is now producing a reflector decal in full color halftones, as well as simpler designs and lettering, to make truck identification panels a night advertising medium as well as day.

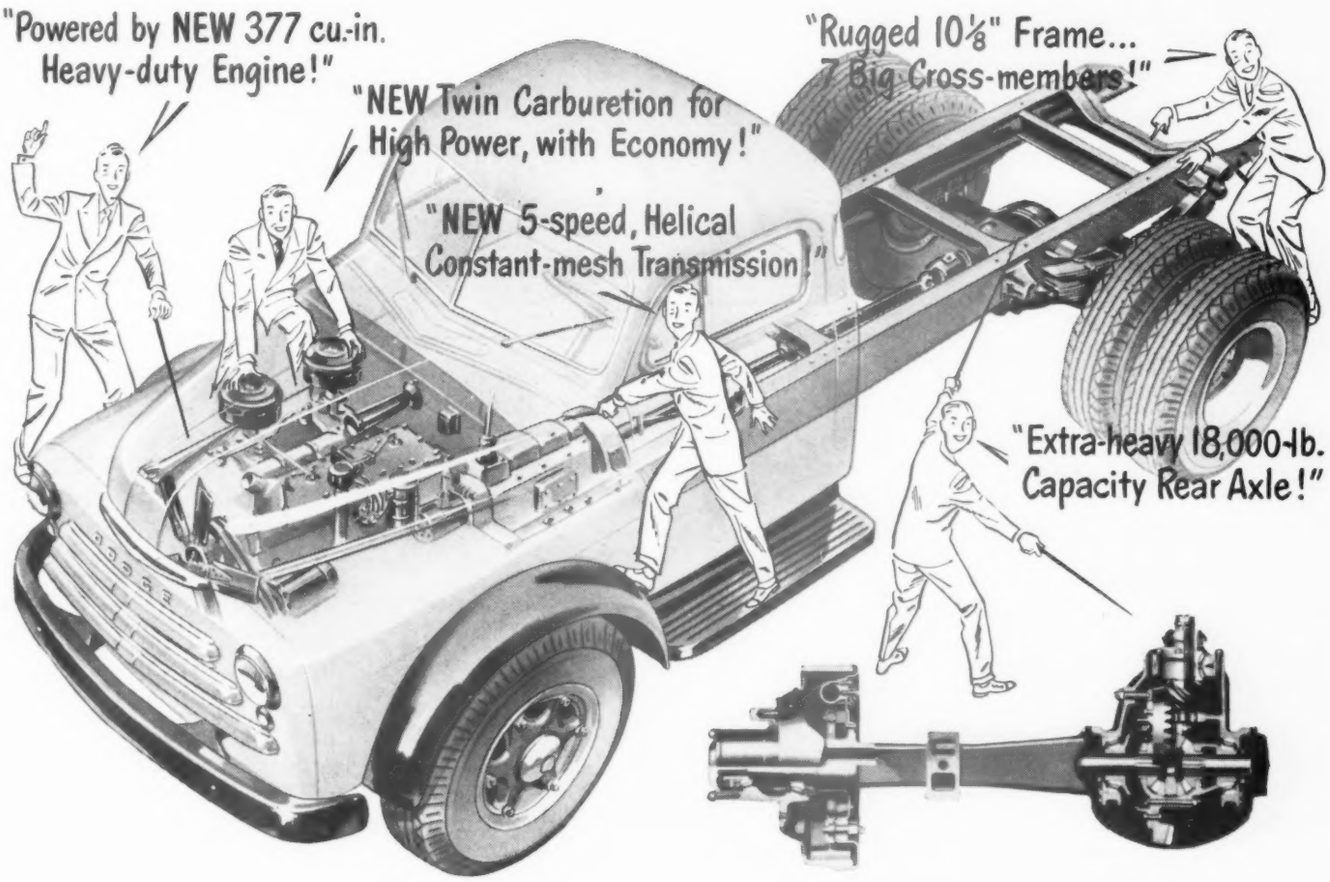
* * *

J. O. Stephenson Foundry and Mfg. Co., 548 E. Fort St., Detroit 26, Mich., has marketed a hydraulic jack which also functions as a transmission jack. Known as "Step-Draulic," the jack is 1½ ton capacity and weighs only 58 lbs. The foot or hand operated hydraulic pump and release valve are in one unit. When fitted with a universal carrier and adapter, it is suited for transmission work. . . . **International Rustproof Corp., 12507 Plover Ave., Cleveland,** is now producing a rust preventative for use on aluminum, chrome, ferrous or non-ferrous metals. Known as Rustarest No. 30, the product provides a clear coating over plated parts and bare metal. It is pliable enough to take bending. The manufacturer states that as a primer, it prevents paint from chipping off.

BIG NEWS for haulers of BIG LOADS!

New Heavy-Duty 4-TON

DODGE "Job-Rated" TRUCKS


"Powered by NEW 377 cu.-in. Heavy-duty Engine!"
"NEW Twin Carburetion for High Power, with Economy!"
"NEW 5-speed, Helical Constant-mesh Transmission!"
"Rugged 10⅛" Frame... 7 Big Cross-members!"
"Extra-heavy 18,000-lb. Capacity Rear Axle!"

There's a *new* champion in the HEAVY-DUTY truck field. It's the new Dodge truck rated at 28,000 pounds G.V.W. . . . 50,000 pounds G.C.W.!

Ample "*Job-Rated*" POWER flows from one of the finest-performing, and most economical truck engines ever designed. It develops 154 gross horsepower, and 330 pound-feet gross torque.

This remarkable engine contains such advanced long-life features as Silchrome intake valves and inserts. Exhaust valves are Stellite-faced and sodium-filled to resist warping, wear longer.

Hydraulic lifters insure perfect valve operation. Rustproof water distributor tube provides maximum valve seat cooling, and lengthens engine life. High power output and economy result from two downdraft carburetors. Features are numerous: Dual intake manifold; dual exhaust system; high anti-vapor-lock pump; ceramic fuel filters; velocity-type governors; oil-bath air cleaners, and many others.

This "*Job-Rated*" load lugger has a new and rugged constant-mesh, 5-speed helical transmission, direct-in-fifth, with an extremely high torque input. A 5-speed overdrive transmission is available.

This 4-tonner has a rugged 10⅛-inch frame, with 7 and 8 big crossmembers; extra-heavy 18,000- and 22,000-pound capacity rear axles, and many other HEAVY-DUTY features you'll want to study and compare.

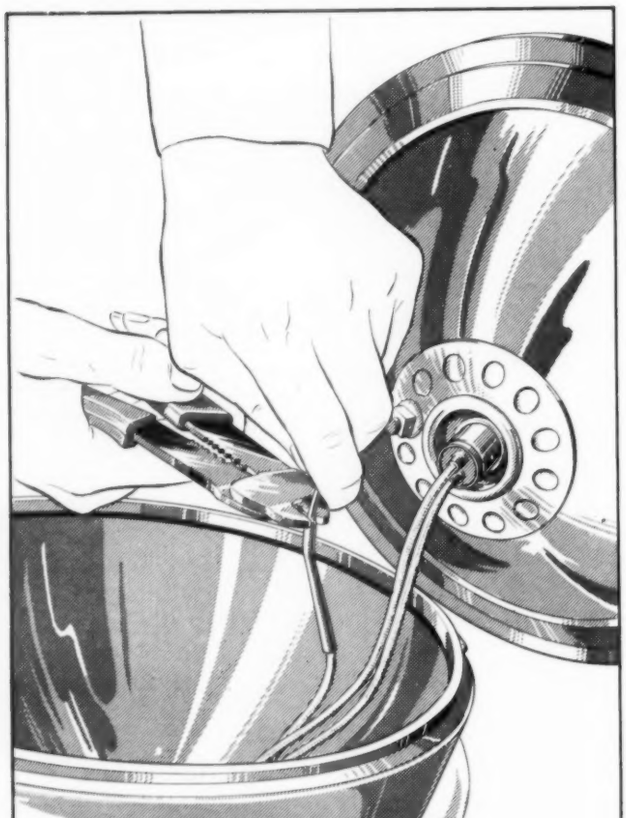
If *your* transportation requirements fall in the 28,000-pound G.V.W. range (up to 50,000 pounds G.C.W.), we believe you'll find this 4-ton heavyweight your long-awaited answer to . . . *lower cost hauling!*

See your Dodge dealer at your earliest convenience.

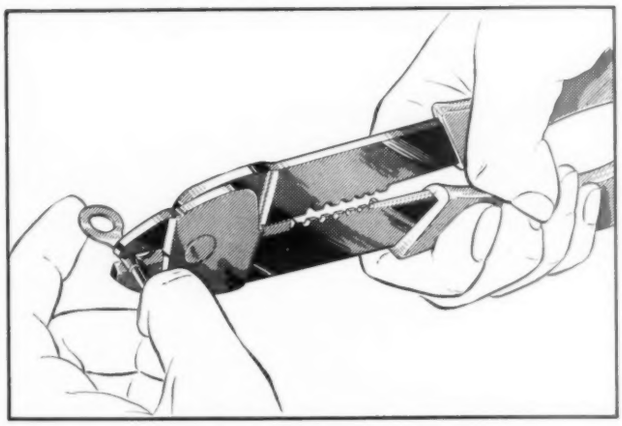
For low-cost transportation...switch to

DODGE "Job-Rated" TRUCKS

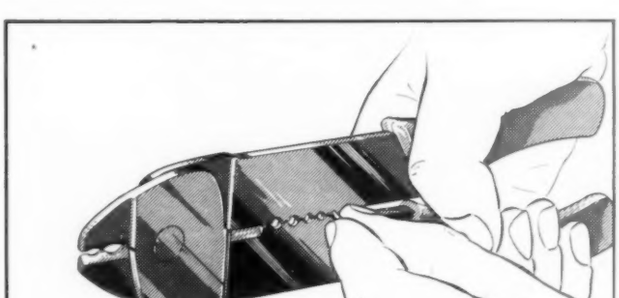
SHOP KINKS
THAT SAVE . . . . . .



1. Special tool cuts, strips wire, puts pressure type electrical connectors on with a single squeeze.



2. Ring tongue and spade type terminals are used because they can be easily fastened to a stud.



Stud hole gage on reverse side of tool selects proper terminal. Operation takes 1-2 minutes.

Solderless Terminals

IN ORDER to save time that would ordinarily be spent soldering, many companies today are using solderless terminals. The solderless method for making electrical connections eliminates the use of flux, electric soldering irons and torches and requires only the use of a small hand tool. Solderless terminals can be used on wires for: generators, lights, terminal boards, fuse panels, horn buttons and heater motors.

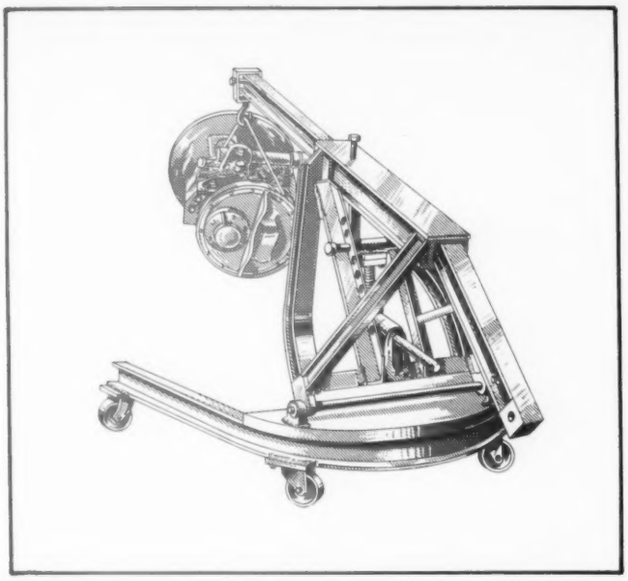
No training is necessary and mechanics can carry all needed equipment in their pockets. In addition to using solderless terminals on the end of wires, it is possible, by using butt and parallel connectors, to splice two or more wires together. The tool, which can be obtained from Aircraft-Marine Products, Inc., Harrisburg, Pa., has handles which are insulated with plastic to eliminate the possibility of shock. The tool is small enough to permit the mechanic to use it on any part of the lighting system with room to spare.

Hoist of all Trades

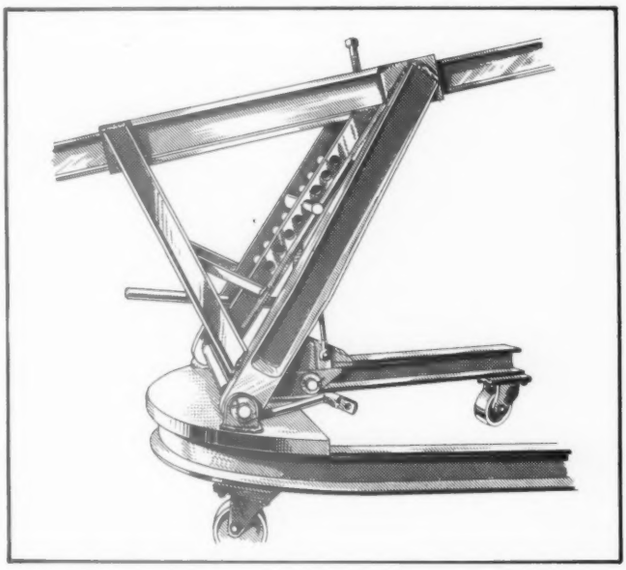
A HANDY HOIST with a wide variety of uses such as removing and replacing engines, lifting transmissions, axles, springs and other heavy units can be built in your spare time from odds and ends found around the shop. The only component which must be purchased is a 10-ton hydraulic jack around which the lifting mechanism is built.

The base of the model shown here is made from a length of three-inch I-beam, set on four reversible casters with a one-inch flat bar 12-inches wide welded to the base. In the middle, a 10-ton jack is bolted to a swinging plate which is fastened to a flat bar at the bottom end and anchored at the top to the boom by means of a pin.

The boom can be made to lift higher than the normal elevation of the jack because there are two brackets welded to the middle of the "A" frame at the bottom of the boom and braced so that they are stationary with regard to the boom. The jack is so arranged that the top can be changed from one set of holes in these brackets to another set according to the amount of lift desired. The boom will slide either forward or backward through a steel box at the top of the "A" frame. It can be turned easily in any direction. At the end of the boom, a handmade universal hook can be fastened which permits easy purchase for lifting operations.

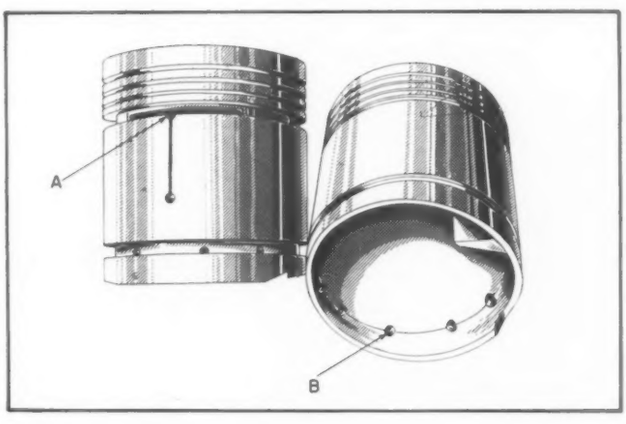


BASE is made from 3-inch I-beam, set on reversible casters with a one-inch bar welded to the base.



TWO BRACKETS welded to the middle of the "A" frame allow a higher lift than the normal jack elevation.

• • •



For Better Oil Mileage

FLEET SUPERVISORS who use horizontally-mounted engines will be interested in this idea which has increased oil mileage in several cases. Inside the piston there is a ridge at the lower ring groove. This ridge, about three-sixteenths of an inch high, serves as a trap, keeping the lower part of the piston full of oil at all times. If a drain or groove is routed through the ridge (A), the oil will drain out of the piston. In addition, if the return slot in the fourth ring groove is widened (B), drainage will be further increased.

MAINTENANCE MEN

Win $25

For any practical item which cuts costs and improves efficiency FLEET OWNER will pay $5 to $10.

Idea of the month will be awarded $25.

Has your shop force developed interesting new devices to improve or simplify maintenance work?

Have they perfected an unusual method or process to restore worn parts to usefulness?

If so, then the place for them is in the monthly clearing house where shop men exchange practical ideas—the Shop Kinks Department.

For each idea which is acceptable for publication in Shop Kinks we will pay cash ranging from $5 to $10 depending on the type of material and the practical value of the idea. Each month the most practical Shop Kink will be awarded the grand prize of $25.

Solicit the men in your shop in behalf of the industry to submit their ideas to us so that we may broadcast this vitally needed information to other truck men through Shop Kinks in this publication.

If this request meets with your approval, won't you please place this page on the bulletin board in your shop? To make it easy for the men in your shop to submit their ideas to us, we will be glad to furnish you with Shop Kink forms and postage-paid envelopes. Just drop us a line if you want them.

Through our cooperative efforts a great amount of practical and valuable maintenance material will be uncovered. By publishing such material in Shop Kinks the entire truck industry will benefit at a time when maintenance help is urgently needed.

Send for your Shop Kink entry form today!

LOWER TOTAL COST-PER-MILE WITH KELLYS!

As every trucker knows, it isn't the initial cost of a tire—but the *low cost per tire mile* that spells bigger savings in the transportation business.

That's why you can depend on Kelly—the trucker's tire—to reduce your trucking costs and boost your trucking profits.

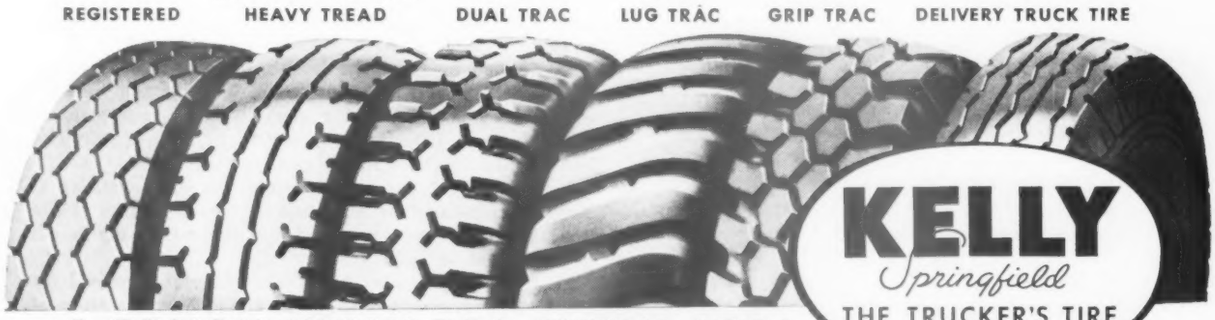
Kellys are tougher, stronger, give you extra thousands of trouble-free miles on any type of highway operation. They take recaps better, too—giving you more *total* mileage and further reducing the final cost-per-mile for your trucks!

Into each Kelly go skill and craftsmanship that have characterized *all* Kellys for 56 years!

With a tire job-designed for every purpose, there's a Kelly to suit *your* trucking needs. So switch now—for more dependable service, more economical operations.

Know-how makes them Better!

KELLY REGISTERED | KELLY COMMERCIAL HEAVY TREAD | KELLY DUAL TRAC | KELLY LUG TRAC | KELLY GRIP TRAC | KELLY DELIVERY TRUCK TIRE



KELLY *Springfield* THE TRUCKER'S TIRE

A TOUGH KELLY FOR EVERY JOB!

THE KELLY-SPRINGFIELD TIRE COMPANY, CUMBERLAND, MARYLAND

Highway and truck operating facts were gathered from test vehicles in Pennsylvania

First "Yardsticks" on Weights, Sizes

Industry and government building factual foundation to life highway construction out of political and anti-truck propaganda bogs.

by Leon F. Banigan
Editor

IN DECEMBER the Highway Research Board's Committee on Economics of Motor Vehicle Size and Weight produced the first of several "yardsticks" needed to lift the problem of commercial vehicle weight and dimension limitations out of the welter of politics and anti-truck propaganda and give it a foundation for factual solution.

The purpose of this particular study was two-fold:

1. To relate gasoline consumption and travel time of vehicles with the weight and power of those vehicles and with the gradiant of a highway in such manner that they can be practically applied to the problems at hand.
2. To develop factors that will fit any given character of highway or vehicle in any part of the country.

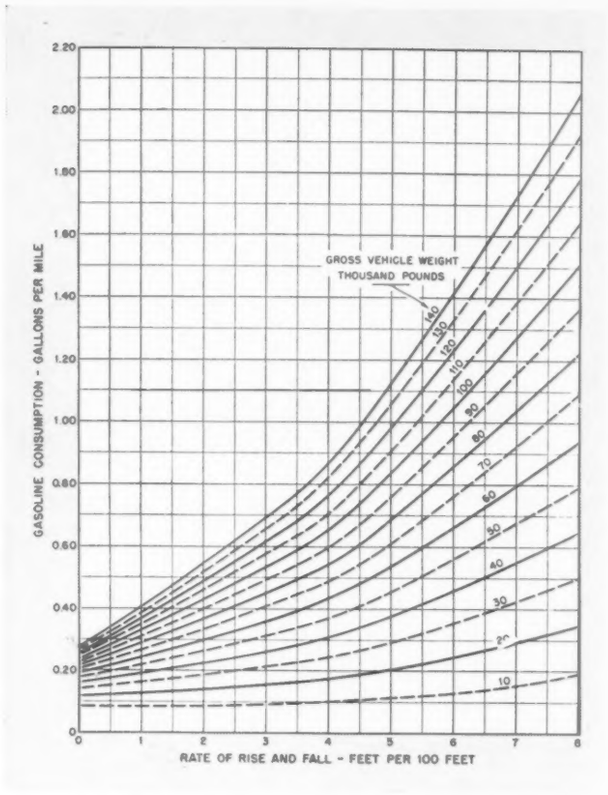
In addition to observations of time and fuel, information was collected on gear shifts, brake applications and engine revolutions with the idea that such information would aid eventually in relating commercial vehicle maintenance costs (to be derived from a separate study) to the highway. Analyses of these additional data, not yet complete, will be subject of a future report.

The subject of weight limitations on trucks is as old as the highways themselves. It was brought again into the hot glare of the controversial spotlight a few months ago when Public Roads Commissioner Thomas H. MacDonald said in a public address that axle loads in excess of 18,000 lbs, were destroying the high-

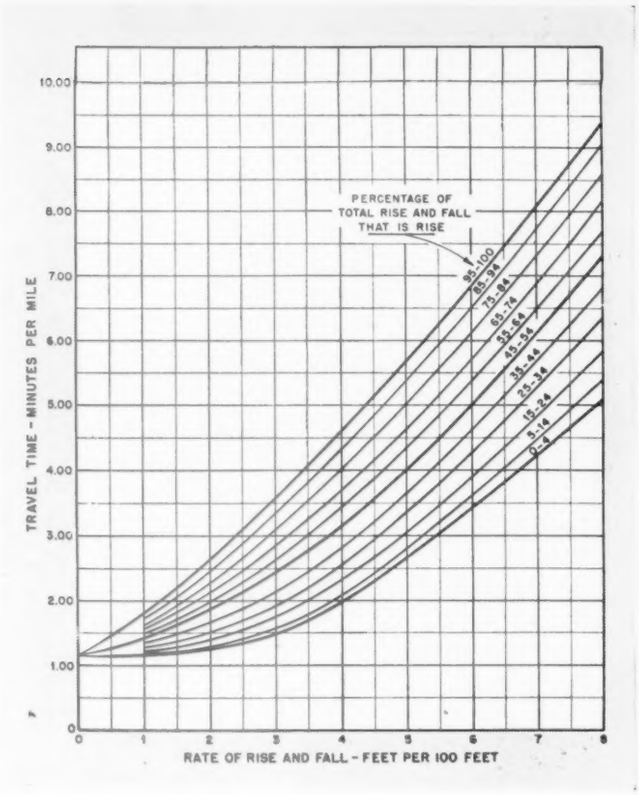
BASIC TERMS DEFINED

Throughout the text and on the charts and tables certain terms are used which must be thoroughly understood to minimize any misinterpretation of the results. A description of those terms follows:

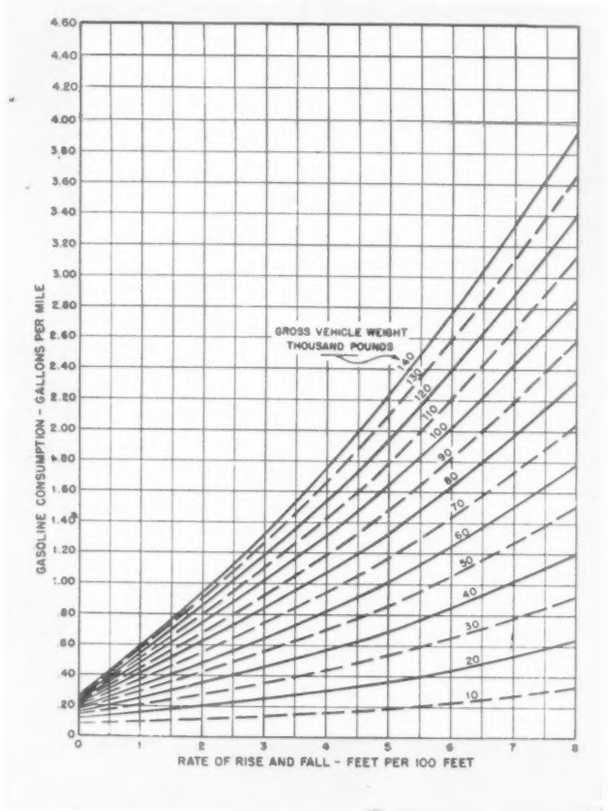
1. *Total rise and fall*—The arithmetic sum of the vertical rise and fall in feet for any section of highway.
2. *Rate of rise and fall*—The total rise and fall for any section of highway divided by the length of section in hundreds of feet.
3. *Gross horsepower*—The brake horsepower of the engine, operating without accessories such as fan, air compressor, generator, muffler, etc., that is available at the clutch or its equivalent.
4. *Net horsepower*—The brake horsepower of the engine, operating with all its normal accessories, that is available at the clutch or its equivalent.
5. *Weight-power ratio*—The ratio of the gross weight of the vehicle or combination of vehicles to the gross or net horsepower of the powered unit.
6. *Gasoline consumption*—The gallons of gasoline consumed per mile of highway travel.
7. *Travel time*—The minutes required to travel one mile of highway. Minutes per mile can be converted to miles per hour by dividing 60 by the minutes per mile.
8. *Composite gasoline consumption*—The total number of gallons of gasoline required by a vehicle of a given weight to travel in both directions on a section of highway, divided by twice the length of the section in miles.
9. *Composite travel time*—The sum of the minutes required by a vehicle of a given weight-power ratio to travel in each direction on a section of highway, divided by twice the length of the section in miles.
10. *Directional gasoline consumption*—The gallons of gasoline consumed by a vehicle in traveling in a single direction over a section of highway, divided by the length of the section in miles.
11. *Directional travel time*—The minutes required for a vehicle to travel in a single direction over a section of highway divided by the length of the section in miles.



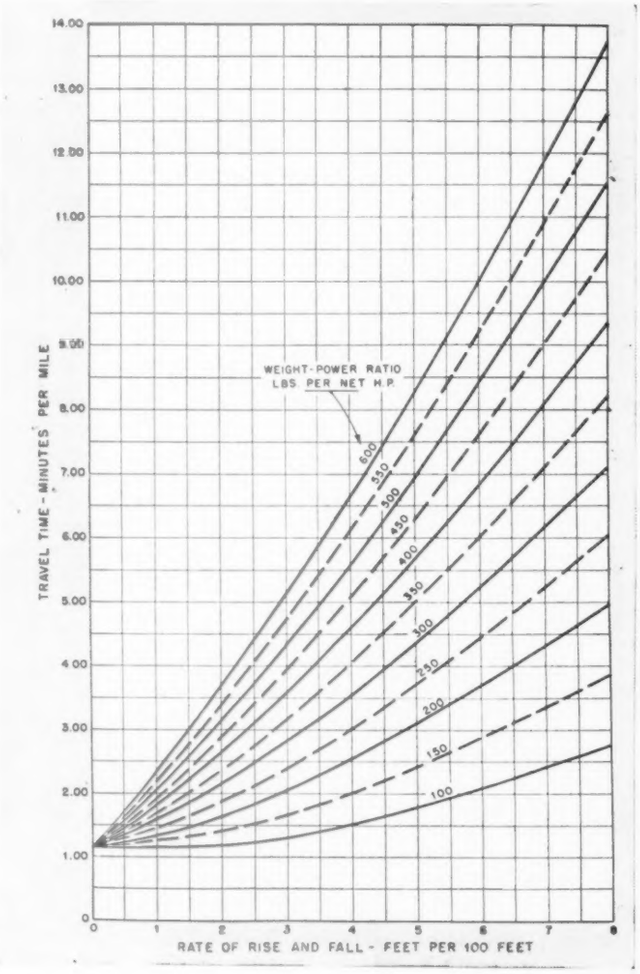
Composite fuel consumption related to rise and fall rate.



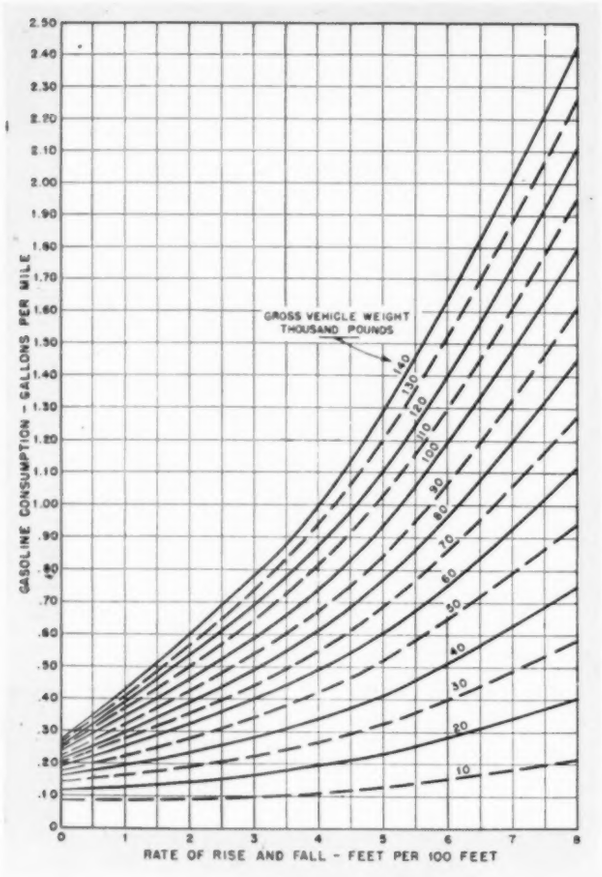
Directional travel time related to rise and fall rate.



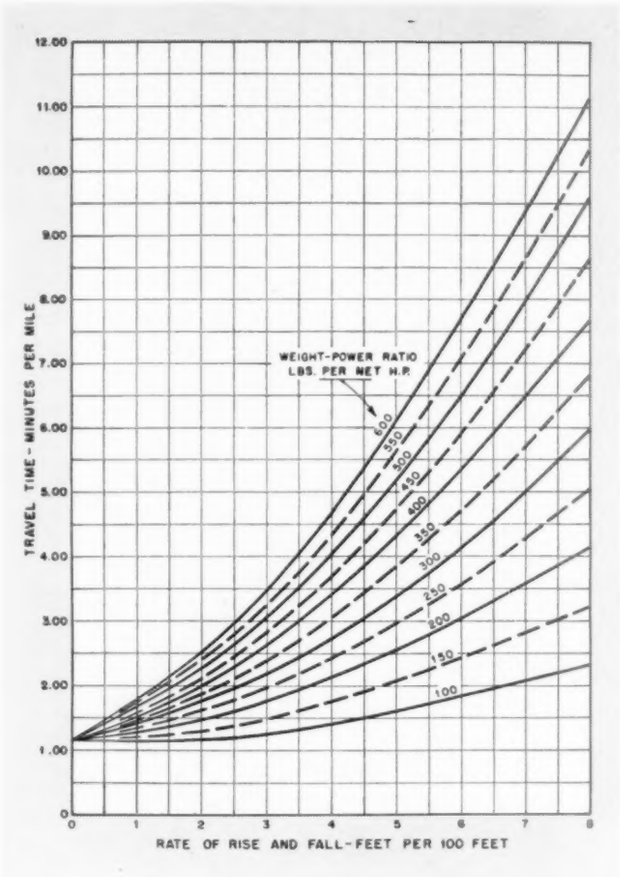
Directional gas consumption related to rise and fall.



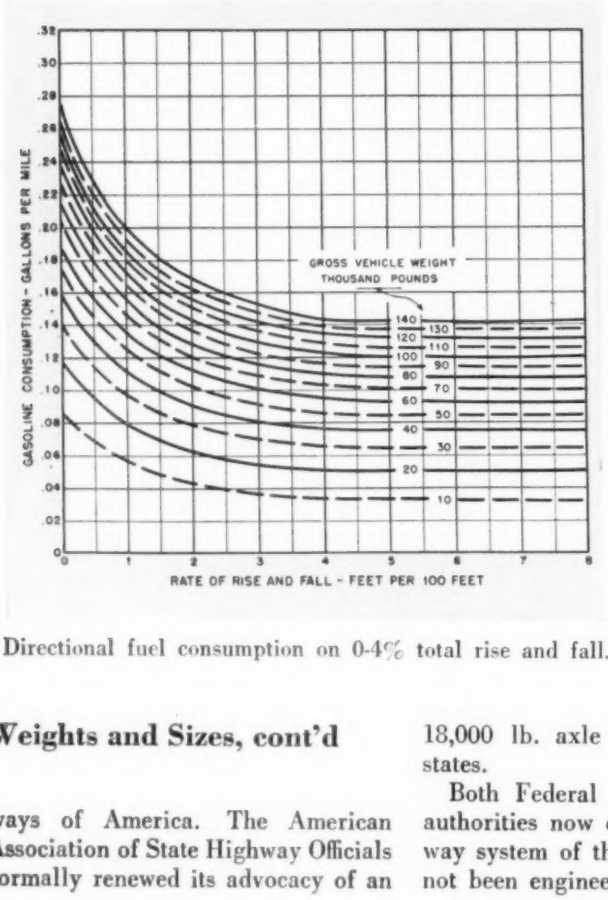
Right, directional travel time as related to rate of rise and fall.



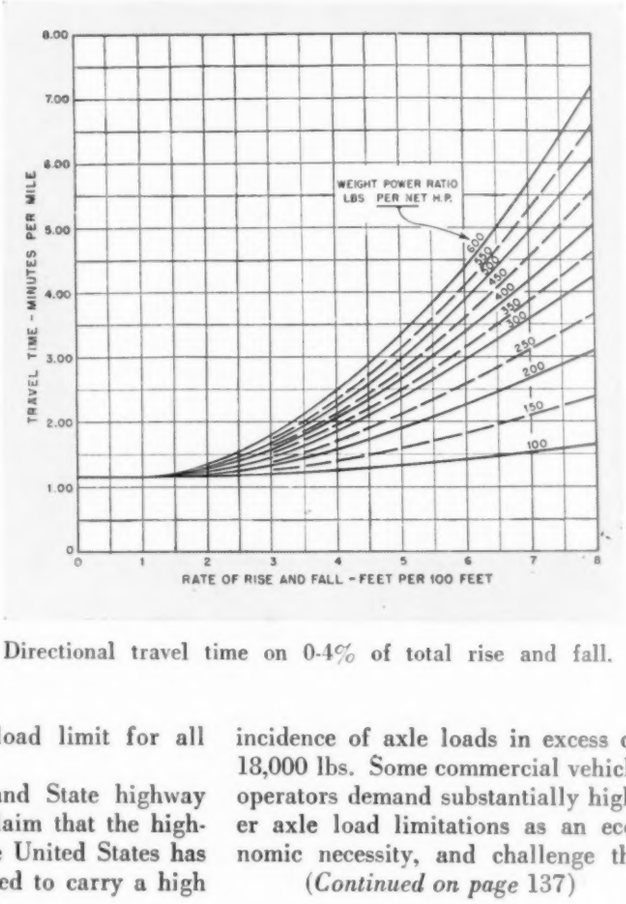
Directional fuel consumption related to rise and fall rate.



Directional travel time related to rate of rise and fall.



Directional fuel consumption on 0-4% total rise and fall.



Directional travel time on 0-4% of total rise and fall.

Weights and Sizes, cont'd

ways of America. The American Association of State Highway Officials formally renewed its advocacy of an 18,000 lb. axle load limit for all states.

Both Federal and State highway authorities now claim that the highway system of the United States has not been engineered to carry a high incidence of axle loads in excess of 18,000 lbs. Some commercial vehicle operators demand substantially higher axle load limitations as an economic necessity, and challenge the

(*Continued on page* 137)

"FOR MILEAGE, FOR COST, FOR PLAIN DOWNRIGHT VALUE, I'VE FOUND ARMSTRONG TIRES UNBEATABLE!"

L. R. KECK
Keck Motor Service,
Des Moines, Iowa

●"The day I started out in this business, I knew I had to buy wisely to make the operation pay off.

"I'm glad I did. Today, I've got 17 trucks on the road, and the business is in good shape.

"I watched tires carefully right from the start. I tried them all—kept figures on original cost, operating cost, and retread life.

"Then I compared mileage cost. Armstrong Tires were so far ahead that it wasn't funny! There was the proof, all right—dollar for dollar, mile for mile, Armstrongs gave me more real value than any other tires. "These Armstrongs are the greatest buy I know of today!"

Armstrong Rubber Company
Plants: West Haven 16, Conn.
Natchez, Miss., Des Moines, Iowa

ARMSTRONG
TRUCK TIRES

Since 1912, millions of tires for cars, trucks and tractors have proved Armstrong's leadership in value.

For further information on advertised products, use post-paid business reply card, page 72.

Food Industry Trucks First Among

Lumber Industry Ranks Second In Business Fleets

FOOD IS CONSIDERED the most important of the necessities for keeping mankind going, and the truck and trailer is an important part of this industry. In fact, about 57 percent of all trucks in fleet service in manufacturing industries are required for handling food and dairy products.

Living accommodations are presumed to rank right after food and next to food comes the lumber and wood products branch of industry using about 11 percent of the trucks. Stone, glass, and clay products, also a part of building, accounts for about 4.6 percent. The chemical and allied industries use 4.5 percent.

Figures are from a new study of the Census Bureau, based on trucks in fleet operation in the 1947 Census of Manufacturers. Over 408,000 vehicles are covered, in returns from 246,000 firms. The study covers about 5 percent of all trucks in this type of fleet service used in 21 major groupings of industry. This is a representative cross section, and the accompanying table gives the break-down by industries, and by different phases within an industry.

The lighter trucks are in greatest use, in the break-down based on the rated capacity by manufacturers. The 1½-ton group ranks first, with 139,000 trucks. A close second is the under 1½-ton group, with 135,000 trucks. The 1½- to 3½-ton group accounts for 53,000 trucks; the 3½ to 5 ton, 8,700; and over 5 tons, 11,800 trucks. There were about 26,500 truck-tractors reported in the census, and about 33,300 semi-trailers.

The body type summary shows 29,400 vans, 89,400 stake or platform types; 141,300 panels, and 88,000 other types.

The census figures cover manufacturing only, and do not include trucks used in agriculture, or in delivery, government and institutional agencies or other non-manufacturing phases of business. END

Trucks, Semi-Trailers Used In Manufacturing Industry

National Highway Users Conference Research Department Compilation of Census Bureau Reports of 1947 Census of Manufacturers

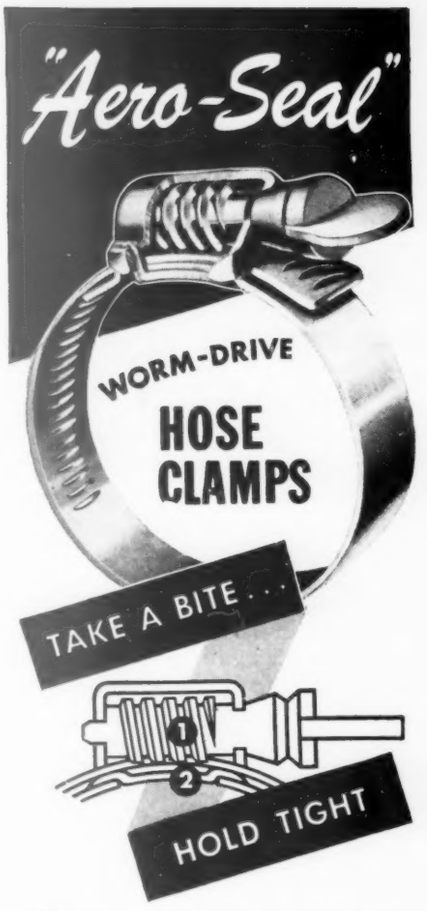
	Number of Firms	Total[1] Vehicles	manufacturers rated capacity (tons) Under 1½	1½	1½ 3½	3½ 5	Over 5	Truck Tractors	Trailers; Semi-Trailers
U. S. Summary	**246,437**	**408,221**	**135,041**	**139,220**	**53,451**	**8,798**	**11,834**	**26,542**	**33,335**
FOOD AND KINDRED PRODUCTS									
Meat Products	3,974	19,240	4,057	7,585	3,603	547	569	1,355	1,524
Dairy Products	7,816	58,339	23,708	20,824	7,773	749	637	2,036	2,612
Canned and Preserved	3,826	9,675	2,203	3,588	1,068	151	251	978	1,436
Grain-mill Products	4,206	11,067	1,879	3,776	1,801	274	480	1,310	1,547
Bakery Products	6,797	60,980	42,394	14,530	1,434	272	118	1,059	1,173
Sugar: Confectionery, etc.	1,935	2,512	726	774	305	73	106	234	294
Beverages	6,755	48,445	7,366	25,672	9,729	1,227	1,443	1,308	1,700
Miscellaneous Food	6,691	21,857	8,862	9,130	1,864	267	324	653	757
Totals	**42,000**	**232,115**	**91,195**	**85,879**	**27,577**	**3,560**	**3,928**	**8,933**	**11,043**
TOBACCO MANUFACTURERS									
Tobacco Products....Totals	1,086	745	140	256	141	19	30	77	82
APPAREL									
Men's-Boys' Suits and Coats	1,969	187	89	51	21	7	1	9	9
Men's-Boys' Furnishings	4,026	473	173	149	73	19	13	22	24
Women's-Misses' Outerwear	10,085	267	150	71	32	6	—	4	4
Undergarments; fur goods; millinery; children's outerwear	6,899	233	132	60	26	5	2	4	4
Misc. Apparel & Accessories	1,727	133	67	42	9	2	1	4	8
Misc. Fabricated Textiles	6,254	1,603	876	445	127	18	29	51	57
Totals	**30,960**	**2,896**	**1,487**	**818**	**288**	**57**	**46**	**94**	**106**
LUMBER AND WOOD PRODUCTS									
Lumber and Timber Basic Prod.	19,685	36,987	5,223	10,229	5,287	735	1,022	7,042	7,449
Millwork and related	2,681	3,900	786	1,472	613	94	97	345	493
Wooden Containers	1,516	2,744	392	926	450	81	63	374	458
Misc. Wood Products	2,349	1,550	348	599	274	31	50	110	138
Totals	**26,231**	**45,181**	**6,749**	**13,226**	**6,624**	**941**	**1,232**	**7,871**	**8,538**
FURNITURE AND FIXTURES									
Household Furniture	4,880	3,978	764	1,448	605	97	67	478	519
Office and Professional Fur.	1,547	913	282	333	134	16	19	62	67
Misc. Furniture, Fixtures	1,260	919	552	227	69	9	4	25	33
Totals	**7,687**	**5,810**	**1,598**	**2,008**	**808**	**122**	**90**	**565**	**619**
PAPER AND ALLIED PRODUCTS									
Pulp, Paper and Paperboard	891	3,817	491	1,212	798	153	204	407	552
Converted Paper and Board Prod.	6,424	6,104	710	1,944	1,164	344	322	694	926
Totals	**7,315**	**9,921**	**1,201**	**3,156**	**1,962**	**497**	**526**	**1,101**	**1,478**
PRINTING AND PUBLISHING									
Newspapers, Periodicals, Books	11,920	5,185	3,067	1,157	482	158	252	37	32
Comm. Printing; Cards; Book Binding, etc.	14,849	1,756	1,097	355	169	46	51	15	23
Printing Trade Services Industries	2,217	291	244	35	9	1	2	—	—
Totals	**28,986**	**7,232**	**4,408**	**1,547**	**660**	**205**	**305**	**52**	**55**
CHEMICALS AND ALLIED PRODUCTS									
Industrial Inorganic Chem.	412	1,441	358	381	156	69	177	124	176
Industrial Organic Chem.	563	2,346	656	635	389	139	187	123	217
Drugs and Medicines	1,355	816	306	262	100	20	35	41	52
Soap and Related Products	1,392	885	303	274	109	41	56	47	55
Paints and Allied Products	1,456	1,406	391	484	244	66	107	46	68
Gum and Wood Chem.; Fertilizers	822	1,739	328	672	223	29	55	192	240
Vegetable and Animal Oils	1,194	6,178	634	2,901	1,087	149	180	558	669
Miscellaneous Chem. Prod.	2,879	3,769	580	615	441	161	298	436	1,238
Totals	**10,073**	**18,580**	**3,556**	**6,224**	**2,749**	**674**	**1,095**	**1,567**	**2,715**
PRODUCTS OF PETROLEUM AND COAL									
Petroleum and Coal Products **Totals**	**1,387**	**6,862**	**1,593**	**1,691**	**1,035**	**258**	**559**	**754**	**972**
RUBBER PRODUCTS									
Tires, Tubes; Footwear; etc. **Totals**	**875**	**1,375**	**317**	**384**	**166**	**32**	**47**	**106**	**323**
LEATHER AND LEATHER PRODUCTS									
Tanning; Shoes; Industrial Goods	2,850	920	293	337	124	33	41	36	56
Gloves; Luggage and Related	2,458	229	132	64	17	4	—	6	6
Totals	**5,308**	**1,149**	**425**	**401**	**141**	**37**	**41**	**42**	**62**

[1] Includes trucks, truck tractors, trailers and semi-trailers. Passenger cars, buses and industrial tractors excluded.

Manufacturing Fleets

U. S. Summary	Number of Firms 246,437	Total[1] Vehicles 408,221	manufacturers rated capacity (tons) Under 1½ 135,041	1½ 3½ 139,220	3½ 5 53,451	Over 5 8,798	Over 5 11,834	Truck Tractors 26,542	Trailers; Semi-Trailers 33,335
STONE, CLAY AND GLASS PRODUCTS									
Glass Products	1,301	1,155	390	354	172	31	57	66	85
Cement; Structural Clay Prod.	1,265	4,275	547	1,277	756	164	411	493	627
Pottery and Related Products	742	381	88	127	71	17	29	23	26
Concrete, Plaster and Stone	7,134	11,868	1,888	4,951	2,256	438	654	795	886
Misc. Non-metallic Products.	1,208	1,165	252	411	242	59	94	52	55
Totals	**11,650**	**18,844**	**3,165**	**7,120**	**3,497**	**709**	**1,245**	**1,429**	**1,679**
PRIMARY METAL INDUSTRIES									
Iron and Steel Furnace; Mill and Foundry	2,256	3,880	763	1,200	779	233	405	229	271
Primary Nonferrous Metals	410	791	150	242	161	40	69	58	71
Nonferrous Metal Mill and Foundry Products	1,886	1,321	402	280	191	45	137	114	152
Other Primary Metal Industries	811	854	222	260	101	33	55	74	109
Totals	**5,363**	**6,846**	**1,537**	**1,982**	**1,232**	**351**	**666**	**475**	**603**
FABRICATED METAL PRODUCTS									
Tin Cans, Cutlery, Tools, Hardware	2,083	1,552	350	291	161	42	90	216	402
Heating, Plumbing	1,276	1,934	642	781	225	40	58	86	102
Fabricated Struct. Metal Prod.	4,507	6,601	2,164	1,981	758	166	289	553	690
Metal Stamping and Coating; Light Fixtures	5,643	2,068	636	683	274	59	56	142	218
Wire; Barrels, Drums, etc.	1,154	985	299	291	93	18	18	106	160
Other Fabricated Metal Prod.	2,071	638	291	174	91	21	33	13	15
Totals	**16,734**	**13,778**	**4,382**	**4,201**	**1,602**	**346**	**544**	**1,116**	**1,587**
MACHINERY (Except Electrical)									
Engines, Turbines, Farm, Construction, etc.	2,000	3,452	1,275	947	447	111	97	257	318
Metalworking Machinery	4,293	1,320	711	330	149	32	52	20	26
Special Industry Machinery	4,106	1,992	950	540	255	50	91	48	58
General Industry Machinery	2,191	2,058	862	638	275	64	93	60	66
Office and Store Machines	357	239	116	54	49	9	11	—	—
Service, Household Mach.	1,088	1,629	539	444	190	40	40	165	211
Misc. Machinery Parts	3,871	1,676	674	480	223	57	82	70	90
Totals	**17,906**	**12,366**	**5,127**	**3,433**	**1,588**	**363**	**466**	**620**	**769**
ELECTRICAL MACHINERY									
Generating and Distributing	1,567	1,465	626	357	178	57	57	77	113
Elec. Appliances; Lamps; Insulated Wire	669	462	132	135	53	17	26	37	62
Communication Equipment	1,210	903	320	252	148	16	81	34	52
Misc. Electrical	527	509	207	162	43	12	15	33	37
Totals	**3,973**	**3,339**	**1,285**	**906**	**422**	**102**	**179**	**181**	**264**
TRANSPORTATION EQUIPMENT									
Motor Vehicles and Equipment	1,904	5,327	1,166	900	775	76	133	902	1,375
Aircraft and Parts	332	1,166	365	318	115	39	55	101	173
Ship, Boat Building; Railroad Equip.	1,475	2,050	636	636	304	70	103	113	188
Totals	**3,711**	**8,543**	**2,167**	**1,854**	**1,194**	**185**	**291**	**1,116**	**1,736**
INSTRUMENTS									
Surgical and Ophthalmic	1,957	493	240	154	64	10	15	4	6
Watches and Clocks	642	356	131	67	43	10	52	7	46
Totals	**2,599**	**849**	**371**	**221**	**107**	**20**	**67**	**11**	**52**
MISCELLANEOUS MANUFACTURING INDUSTRIES									
Jewelry and Silverware	2,031	135	83	25	19	4	2	2	1
Musical Instr.; Toys, etc.	2,458	539	213	167	84	21	8	21	25
Office Supplies; Costume Jewelry; Notions	2,821	363	171	111	49	11	19	1	1
Plastic Products; Misc. Mfg.	3,282	1,527	573	614	155	29	25	54	77
Signs; Misc. Mfg. Products	3,539	2,666	1,670	667	204	19	35	36	35
Totals	**14,131**	**5,230**	**2,710**	**1,584**	**511**	**84**	**89**	**113**	**139**
MOTION PICTURES									
Motion Pictures.....Totals	277	705	216	170	74	60	89	10	86
TEXTILE MILL PRODUCTS									
Cotton, Rayon and Related	2,887	3,090	652	1,297	575	66	113	169	218
Woolen and Worsted	828	856	144	263	207	51	91	42	58
Knitting Mills	3,126	851	396	289	106	11	27	11	11
Carpets and Rugs	296	317	63	61	60	19	29	24	61
Hats (except cloth, millinery)	271	83	24	29	14	6	2	4	4
Miscellaneous Textile Prod.	777	658	133	220	111	23	37	59	75
Totals	**8,185**	**5,855**	**1,412**	**2,159**	**1,073**	**176**	**299**	**309**	**427**

[1] Includes trucks, truck tractors, trailers and semi-trailers. Passenger cars, buses and industrial tractors excluded.



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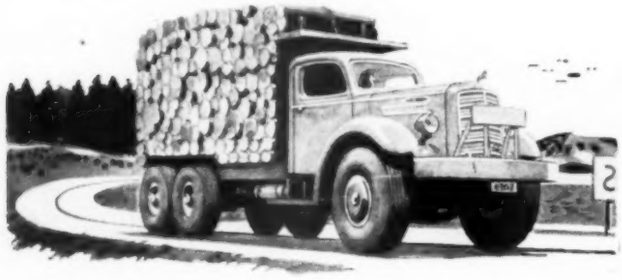
Question: *Why has the diesel engine been the subject of so much experiment? Millions have been spent—for years—on its improvement.*

Answer: The prize is worth the race. The diesel engine is capable of converting a greater percentage of the latent energy of the fuel into useful work than is any other kind of automotive powerplant. The gasoline engine is about 25 per cent efficient, the steam powerplant about 5 per cent, while the diesel is 35 per cent efficient. This means that the diesel engine has 40 per cent more thermal efficiency than the gasoline engine. Using a lower-priced fuel to begin with, it then delivers more miles per gallon. This means a potential saving of countless millions of dollars in world transportation and the conservation of the world's fuel reserves.



Question: *How does the diesel achieve such efficiency?*

Answer: Entire textbooks have been written on this question but to put it briefly: by operating at very high and constant compression, and by using more air in the combustion than does the gasoline engine, the diesel converts more of the heat value of the fuel into active power.

Question: *What does this higher thermal efficiency mean to me?*

Answer: About 75 per cent more miles per gallon than comparable gasoline-powered trucks . . . and this with a fuel which costs less per gallon.

Question: *What have been the problems in diesel development?*

Answer: For 23 years the aim has been to achieve controlled combustion and to secure efficient fuel injection at the high speed at which these engines must run for today's modern performance. At the same time, another aim has been to keep the weight and size comparable to that of a gasoline engine.

These are no longer problems with Mack. Efficient combustion control has been secured, resulting in diesel engines which are smokeless and vibrationless, and which are comparable in performance, weight and size to Mack's famous Thermodyne gasoline engines.

Question: *What advantages other than low fuel cost are to be expected of diesel trucks?*

Answer: There is only one advantage in a diesel engine that we know of, and that is *fuel economy*. But that advantage is so great in a Mack that it quickly repays the added cost of building and installing a diesel.

Question: *If the added cost is soon offset by the fuel economy, isn't that enough to make the diesel obsolete the gasoline engine?*

Answer: Decidedly not. At least, not yet. You can realize on the fuel economy of a diesel *only* if you operate a sufficient number of miles or engine hours per year. And this is presuming a truck or tractor of about 40,000 lbs. or more gross weight (chassis, body and load).

Question: *But aren't there a lot of trucks in this category—heavy duty commercials, long distance freight lines, building contractors, earth movers, concrete mixers, mines and quarries, bus lines, etc.?*

Answer: Yes. If you are in one of these categories, the diesel engine today can very possibly *revolutionize your cost picture!*

Question: *In the main, then, diesel truck engine problems have been solved?*

Answer: As we have indicated above, they have not only been solved; they have been solved *brilliantly!* Today, in Mack's newly perfected line of diesel truck engines—built by Mack only for Mack trucks—industry is offered an immediate means of cutting costs and increasing profits by substantial margins.

Question: *For instance?*

Answer: The smallest Mack diesel tractor unit, 40,000 lbs. gross (weight of complete unit and load), while costing a bit more than a Mack gasoline engine truck of equivalent power, is capable of earning back this extra cost in much less than a year on its fuel savings alone! After that, its owner can pocket a newly found profit of considerable size! Of course, the actual write-off of the cost for a Mack

DIESELS ?"

diesel will take greater or less time, depending on the mileage or engine hours resulting from the individual operation. It is a Mack sales policy never to sell a man a diesel who can't profit by it—and quickly! Your needs are carefully analyzed. If you cannot readily profit by operating diesels, Mack won't sell you one! If you *can* profit by it—quickly—you will find that a Mack diesel will give your business substantial new earning power . . . as it is already doing for thousands of truck owners!

Question: *What is a typical diesel fuel cost comparison with gasoline engine operation?*

Answer: Here is an example of how a Mack diesel saves money:

You may have a truck on the road which, in the next hour, will travel 35 miles. If it gets as much as 5 miles per gallon of gasoline, your fuel cost with, let us say, 24-cent gasoline would be $1.68. If that truck were a Mack diesel, it would use scarcely 4 gallons of fuel. And even at 17¢ a gallon, the total fuel cost would be but 68¢—a saving of $1 per hour . . . *$1 saved in only 35 miles of travel!*

Question: *How about maintenance?*

Answer: Because most of the common parts are identical with Mack gasoline engine parts (which, incidentally, are available everywhere and at gas-engine parts prices) the basic Mack diesel engine can be serviced as easily as can the gasoline engine. Therefore, the over-all maintenance costs should not exceed—at least by any appreciable amount—those of any gasoline engine. The Mack diesel is simplicity itself!

Question: *How many diesel-powered Macks have already been built?*

Answer: Thousands! More than 17,000 were built for the United States and Allied Armies alone during the war. Postwar, Mack has perfected a work of 23 years to bring to American industry, for the first time, engines which give performance comparable to gasoline engines at considerably less fuel cost per mile.

Question: *Isn't it true that diesels smoke and smell worse than gasoline engines?*

Answer: Many did—and some still do. But because of Mack's controlled combustion and the exclusive Mack patented Synchrovance, which provides variable and automatic injection timing, Mack diesel engines are virtually smokeless and odorless. That is the reason why a Mack diesel needs no "smokestacks" and can run its exhaust pipes in the conventional manner —under the chassis frame.

Question: *You say the Mack diesel is simple. Isn't it the general impression that a diesel employs principles widely different from those of a gasoline engine?*

Answer: Not Mack engines. They are of the proved and practical 4-cycle type, which means that they operate on a principle similar to that of the engine in your own car and the gasoline engine in any truck.

Question: *What is the size range of Mack diesels?*

Answer: There are three—of 110, 138 and 165 horsepower, respectively. These engines are designed exclusively for Mack chassis, coupled through Mack transmissions to Mack rear ends. Thus, proper balance of design and the ultimate in performance are achieved.

In every respect—smoothness, performance, flexibility and reliability—the new Mack diesels match Mack's gasoline engines, and they do it with *revolutionary* economy!

You, as a motor truck user, owe it to yourself to go to the nearest Mack branch or dealer for a demonstration of what the new Mack diesel can do. He can analyze your trucking requirements and can tell you in tangible figures just how much you can expect to save with a Mack diesel.

Never before could you buy so *much* for your trucking dollar as you can today from Mack. There has never been a better time than the present to make the *right* investment in trucks.

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FIXING THINGS ELECTRICAL

(*Continued from page* 55)

partly discharging the battery will permit the generator output to be high so the current regulating unit will operate.

Actually there are three separate electrical tests usually required on regulators. These are, cutout relay closing voltage and opening voltage or amperage, current regulator setting, and voltage regulator setting.

The methods of making the tests vary with the type and model of regulator. In general, however, the cutout relay closing voltage is measured with a voltmeter connected between ground or regulator base and the regulator GEN, A or ARM terminal. Generator speed is slowly increased and the voltage noted at which the relay closes.

The current regulator can be checked, as noted above, just after the high-discharge battery test. With an ammeter connected into the charging circuit at the regulator BAT terminal, lights and other electrical loads are turned on and the generator operated at medium speed. The generator will produce full output, as regulated by the current regulator, and the current regulator setting can thus be noted on the ammeter.

The voltage regulator operates to reduce generator output when the battery comes up to charge and the electrical load demands are small. To check the voltage regulator setting, this condition is simulated. There are several ways of doing it and the various recommendations are given by the regulator manufacturers.

Note: Be sure to connect a jumper lead momentarily across the generator and battery terminals of the regulator after any test or adjustment. This assures correct polarization of the generator with respect to the battery it is to charge. Do not operate the generator on open circuit.

If the settings are not within the specifications, adjustments are made. Some operators keep records of regulator settings. This provides assurance that the tests will actually be made periodically, and gives a means of detecting abnormal conditions before they have progressed to the point of failure.

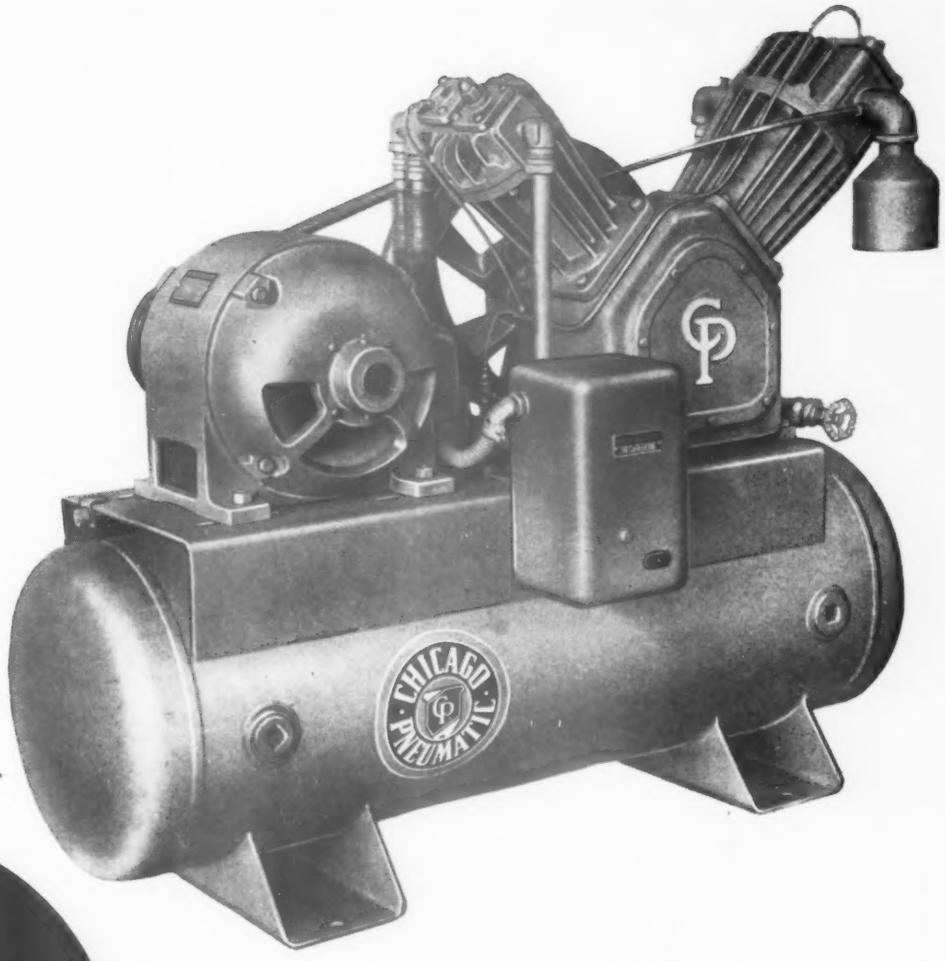
The Generator

Testing the regulator also provides a means of testing the generator. The generator must be in good electrical condition or it cannot produce sufficient current to operate the regulator nor enough voltage to close the cutout relay.

In addition to the electrical tests the mechanical condition of the regulator may be checked. First, the condition of the drive belt, generator mounting, leads, and connections are noted. A loose belt will slip and may prevent the generator from producing rated output. This may result in a run-down battery, and cause rapid belt wear.

The generator coverband is removed so the commutator, brushes, and internal connections be checked.

(*Continued on page* 96)



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FIXING THINGS ELECTRICAL

(*Continued from page* 94)

If a line of solder is found on the coverband, Fig. 3, it is an almost sure indication of generator overload. The generator-regulator system may be checked to determine the cause. It is important to replace worn brushes for good contact with the commutator. This condition may not only prevent normal generator output, but will also cause arcing at and burning of the commutator. A dirty or gummy commutator may be cleaned with a brush-seating stone. The stone can also be used to seat new brushes, Fig. 4. If the commutator is worn, is out-of-round, or if the mica between the commutator bars is high, the generator is disassembled. Then the armature can be put in a lathe so the commutator can be turned down. After this the mica is undercut, Fig. 5.

The brush springs should have sufficient tension to provide firm contact between the brushes and the commutator. The tension varies with different generators and is checked by a spring gage. If the tension is not in accord with the manufacturer's specifications the springs are replaced.

A rough check of the bearing condition can be made by loosening the belt tension and noting the side play of the pulley as well as the ease with which it can be rotated. The commutator-end bearing usually can be checked with the coverband off by noting the side play of the commutator when an attempt is made to move it.

As a final step the generator is lubricated and the belt tightened to the correct tension.

The Starting Motor

If the procedure thus far outlined has been carried out an electrical check of the starting motor and its operating circuit will have been made since the starting motor must be in operating condition before the high-discharge battery test can be completed.

Further checks of the starting motor include removal of the coverband for inspection of the commutator, brushes, and connections.

Worn brushes should be replaced. If the brush spring tension is not correct, it can be adjusted or new brush springs installed. A worn, out-of-round, or rough commutator requires disassembly of the starting motor so the commutator can be turned down in a lathe and the mica undercut. A slightly dirty or gummy commutator can be cleaned with a strip of No. 00 sandpaper held against it with a wood stick while the motor is operated. A brush-seating stone can also be used.

Caution: The starting motor should not be operated for more than 30 seconds at a time. Long cranking periods will cause the motor to overheat and possibly ruin it.

On units so equipped the shift lever and solenoid can be checked for freeness of action. As a final step the starting motor is lubricated.

The Ignition System

The ignition system is made up of the source of electrical energy (battery or generator), switch, the igni-

(*Continued on page* 101)

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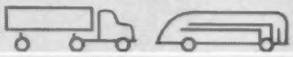

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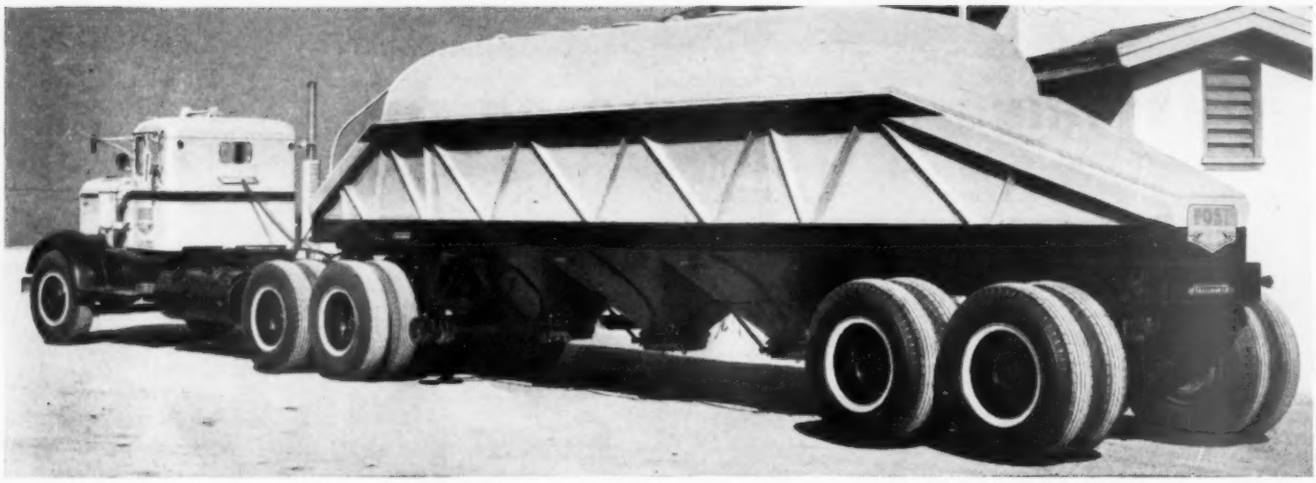

CEMENT—No sacks are needed when Post Transportation Company, Los Angeles, transports dry cement to distant construction projects over "corduroy" roads. Light weight, rugged *bulk haulers*, built of Kaiser Aluminum, do the job. Above is a 35-foot, 10,000-pound unit designed by Kaiser Aluminum engineers and built by Mechanical Services, Inc., Pomona, California. Such units are paying for themselves through increased payload, reduced maintenance costs.

IF YOU CARRY BULK OR SACKED CARGO...

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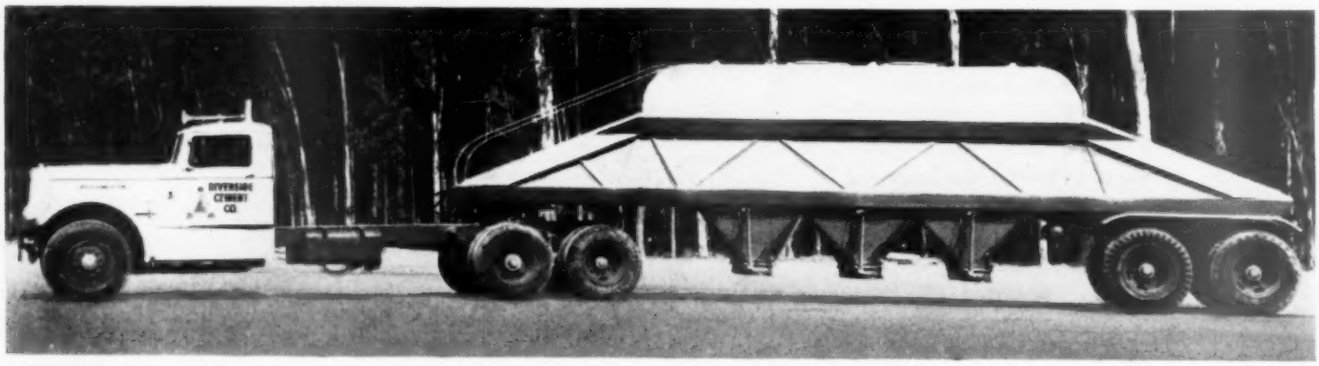
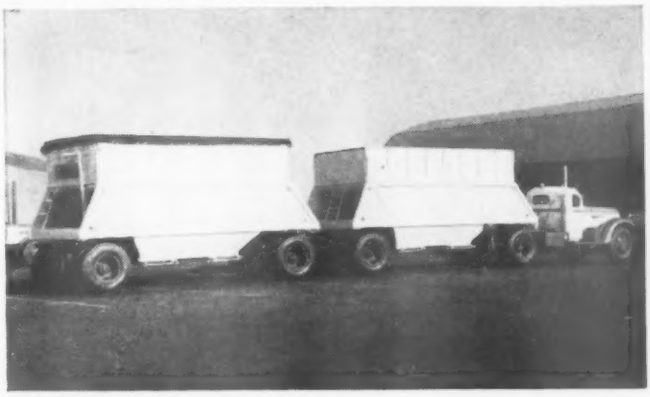
FEED, GRAIN—No dirty, damaged or germ-carrying sacks are used when Triangle Grain Company, Los Angeles, delivers feed, barley and other grains in bulk haulers like this. Especially designed of Kaiser Aluminum, substantial weight savings were possible when Mechanical Services, Inc., Los Angeles, built frameless 35-foot units like these.



CEMENT—Riverside Cement Company, of Riverside, California, uses this 35-foot trailer, with an 800 cu. ft. capacity, to deliver bulk dry cement throughout Southern California. Use of Kaiser Aluminum has reduced the gross vehicle weight by 3,000 pounds of dead weight—and *added* 3,000 pounds of profitable payload!



EARTH—Direct Delivery Service, a subsidiary of Southern California Freight Lines, Los Angeles, uses trains of 20-foot aluminum bulk haulers like these to haul limit loads of diatamaceous earth insulation. Sold by Utility Trailer Company, Los Angeles, each train carries a payload of 45,000 pounds of this low density product—800 cu. ft. per unit, for a total of 1,600 cu. ft. Each train covers 752 miles a day on a rugged 24-hour a day, 7-day a week schedule!

GRAIN—This bulk grain carrier weighs 2,000 pounds less than an identical unit made of steel. Like all of the bulk haulers shown on these two pages, it was designed with the assistance of Kaiser Aluminum's Development and Engineering Division—to take advantage of the lightness, strength and versatility of Kaiser Aluminum. It was built by Aluminum Body Corporation, Vernon, California, for Goldsberry Farm Machinery Company, Ontario, California.

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All of the bulk haulers pictured here were designed and built of Kaiser Aluminum with the assistance of the Development and Engineering Division of Kaiser Aluminum & Chemical Sales, Inc. During every phase of construction Kaiser Aluminum worked closely with the manufacturers to develop economical, reliable, light weight equipment.

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FIXING THINGS ELECTRICAL

(*Continued from page* 96)

tion coil, condenser, distributor, spark plugs, and wiring.

A check of the ignition system requires testing all these components. A variety of equipment is available to test the various components separately or as an operating system. In addition to the electrical tests, however, the mechanical condition of the components is checked.

The low and high-tension wiring is inspected for insulation damage and for tight connections. Cracked or worn insulation or broken strands in the cables call for new wiring.

For a complete ignition coil test, the tester must be able to detect open circuits or high-voltage breakdown, and high primary winding resistance and shorted turns in the primary or secondary. A complete test of the condenser requires a tester that checks for grounding or shorting, low insulation resistance, high series resistance, and capacity.

On many distributors a rough check of the centrifugal and vacuum advance mechanisms may be made by rotating the breaker cam and distributor plate or distributor by hand. After the cam, plate or distributor is rotated a few degrees and released, it should return to its original position. If it does not, springs are broken or loose, or parts are binding. In either case, the distributor is removed for repair.

For a complete check, the distributor is removed and tested on a distributor tester or synchroscope. This type tester puts the distributor through its paces at various speeds and vacuum conditions to make sure it is providing the proper advances under various conditions. It also tests for such things as a bent shaft or worn bearings.

Checking Contact Points

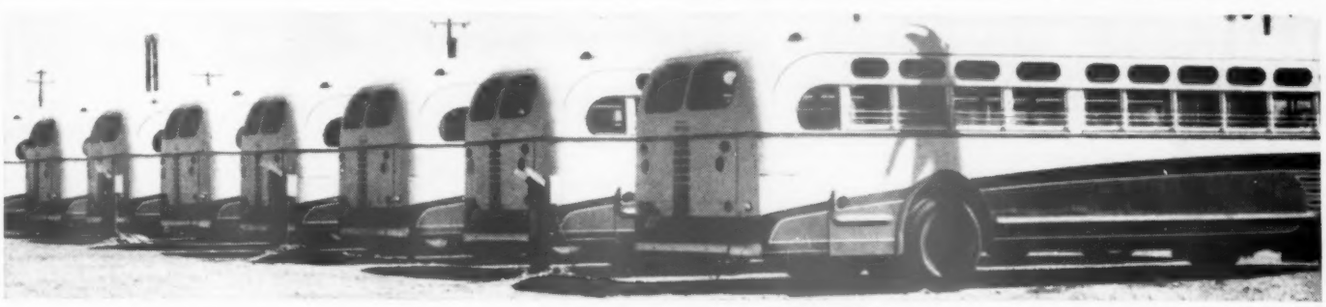
The distributor contact points are checked for point opening or cam angle, Fig. 6, and for spring tension. In addition, they are inspected for roughness and wear. While rough points can be dressed up with a fine cut contact file, it is usual practice to replace them.

While the distributor cap is off, both the cap and rotor are wiped with a clean cloth and inspected for cracks, chipped places, or carbonized paths. Such conditions as well as excessive dirt or moisture may cause high-tension leakage and poor ignition. The cap or rotor is replaced if necessary.

As a final step the distributor is lubricated, replaced, and timed. Lubrication procedures vary with different makes of distributors. In general, however, the distributor bearings, cam, and contact point pivot require lubricating. Some manufacturers supply special cam lubricant. A trace on the cam is all that is required. Likewise only a drop or two of light oil is required on the breaker lever pivot. Avoid over-oiling since excessive lubricant will cause oil to get on the contact points and the points will consequently burn.

Spark plugs are removed, cleaned, checked, and adjusted or replaced, as necessary. Use new gaskets when reinstalling the plugs.

The high points of an electrical maintenance have been outlined in this article. Applying these procedures, and keeping adequate records, is the best insurance known against idle time and costly electrical failures.



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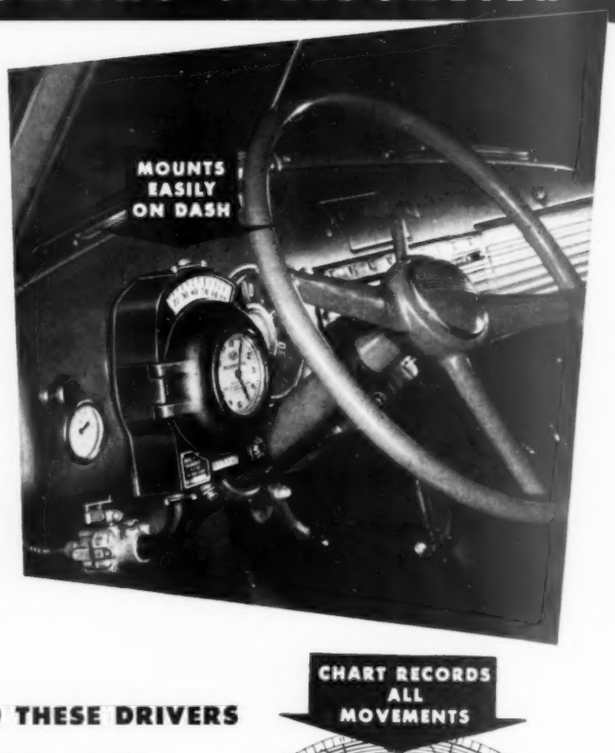

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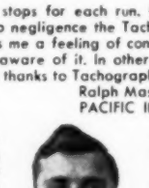

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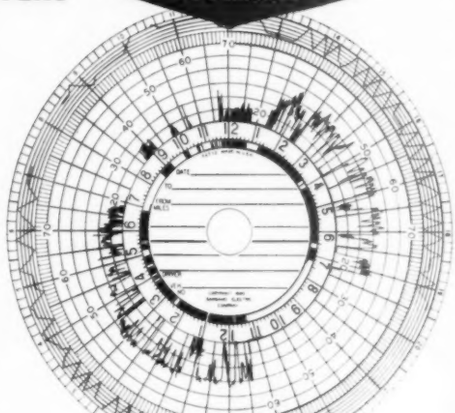

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ENGINE VALVES

(*Continued from page 60*)

the benefits gained do not generally warrant the increased cost. Generally speaking, the larger the stem, the cooler the head, provided that the guide and block are so designed to dissipate the additional heat.

Fig. 5 shows the effect of increasing guide clearance. The greater the clearance, the hotter the valve head. Adequate lubrication aids cooling appreciably. From this chart we can readily see the detrimental effects of worn valve guides.

Fitting the Valve to the Engine

We strongly recommend holding the cencentricity of the valve seat with the valve guide to within a maximum of .002; if it can be held within .001 it is still better. (See Fig. 6).

The use of the interference angle between the valve seat and valve face with the contact point at the top of the seat is recommended. This allows greater unit pressure which tends to cut seat deposits, and insures seating when some valve or seat distortion is present.

The recommended guide clearances are also shown. Previously, it was shown that guide clearance affected head temperature as well as stem temperature.

Deposits on valve stems and sticking occur at elevated temperatures so caution as to guide clearance is a worthwhile suggestion.

When speaking of fitting the valve to the engine, we cannot forget valve seats. Fig. 7 shows the recommended interference fits. To maintain the required fits, smooth machined recesses are necessary. This will also aid in the conduction of heat.

Spring pressures play an important role in valve performance, and it is therefore recommended that the valve seat position be noted and checked at the same time spring pressures are checked. Fig. 8 is an illustration showing a valve in three different positions, X being normal, and XI, X2, and X3 indicating seat recessions of 1/32 in. progressively. A washer is shown in position D as a means of bringing the spring pressure back to standard.

As a note of caution, if a washer is used to compensate for seat recession (grind-in effect) it should be made to the exact required thickness. A washer that is too thick may result in spring coils clashing or excessive spring tension.

Adjusting tappets and maintaining correct lash is one of the major maintenance problems of today. Maintaining correct tappet clearance cannot be too highly stressed since cam design, tappet clearance, and maximum operating speeds are all closely related.

Excessive speeds allow the valve to be thrown off the cam, overstressing the valve to point of breakage.

Excessive tappet clearance causes valves to be let down onto the seat at highly accelerated velocities and overstresses the valve to the point of failure.

Practically all manufacturers specify a definite tappet clearance with the engine hot. Sufficient time must be allowed to uniformly heat the engine before adjusting tappets. The

(*Continued on next page*)

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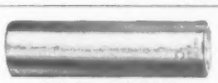

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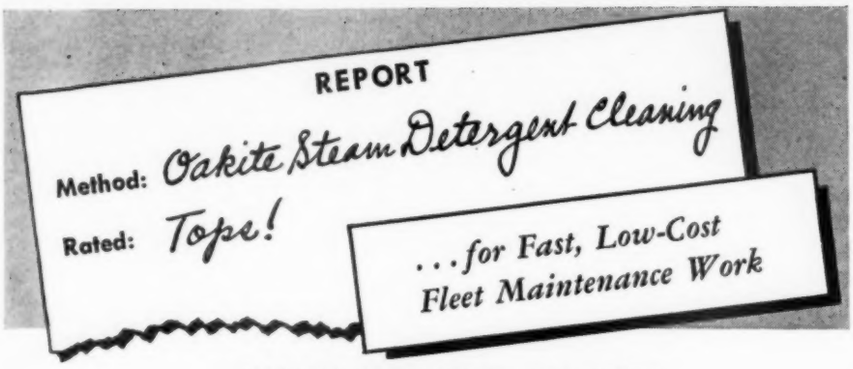

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Oakite Steam-Detergent cleaning combines heat, force and heavy-duty Oakite detergency to remove grease, oil, muck from chassis and motors in a fraction of the time required by manual methods.

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MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

ENGINE VALVES

(*Continued from page* 103)

larger the engine, the longer the warm-up period will be.

Valve Sticking and Burning

The preceding portion of this paper has dealt with valve materials, design features and the details of adapting them to the engine. It so happens that even with our present know-how, it is estimated that sticking and burning account for perhaps 90 percent of all valve failures. Likewise, some discussion on ways and means of correcting or preventing these conditions is worthwhile.

Valve stem sticking may be described as a condition where valves are not following their normal action. At certain elevated temperatures, oil on the stems tends to oxidize and decompose, forming a coke-like deposit which takes up the valve clearance and causes the valves to operate sluggishly.

Sluggish action causes loss of power and if severe enough will always be followed by valve burning. The coke-like deposits vary in texture with the various types of oil, operating conditions, and fuel used. Time does not permit going into the causes and reasons for valve sticking. Actually, it is one of the problems all of us would like to know more about.

Some corrective measures for sticking have already been discussed. The use of the interference angle giving better seating and cooler valve operation, proper guide clearance, tappet clearance and spring pressures all lead to cooler valves and less sticking.

There are, however, a few other corrective measures that have been tried, proven, and found worthwhile in many cases. Cutting off valve guides which protrude into the exhaust port has been suggested many years back. It is still a good recommendation.

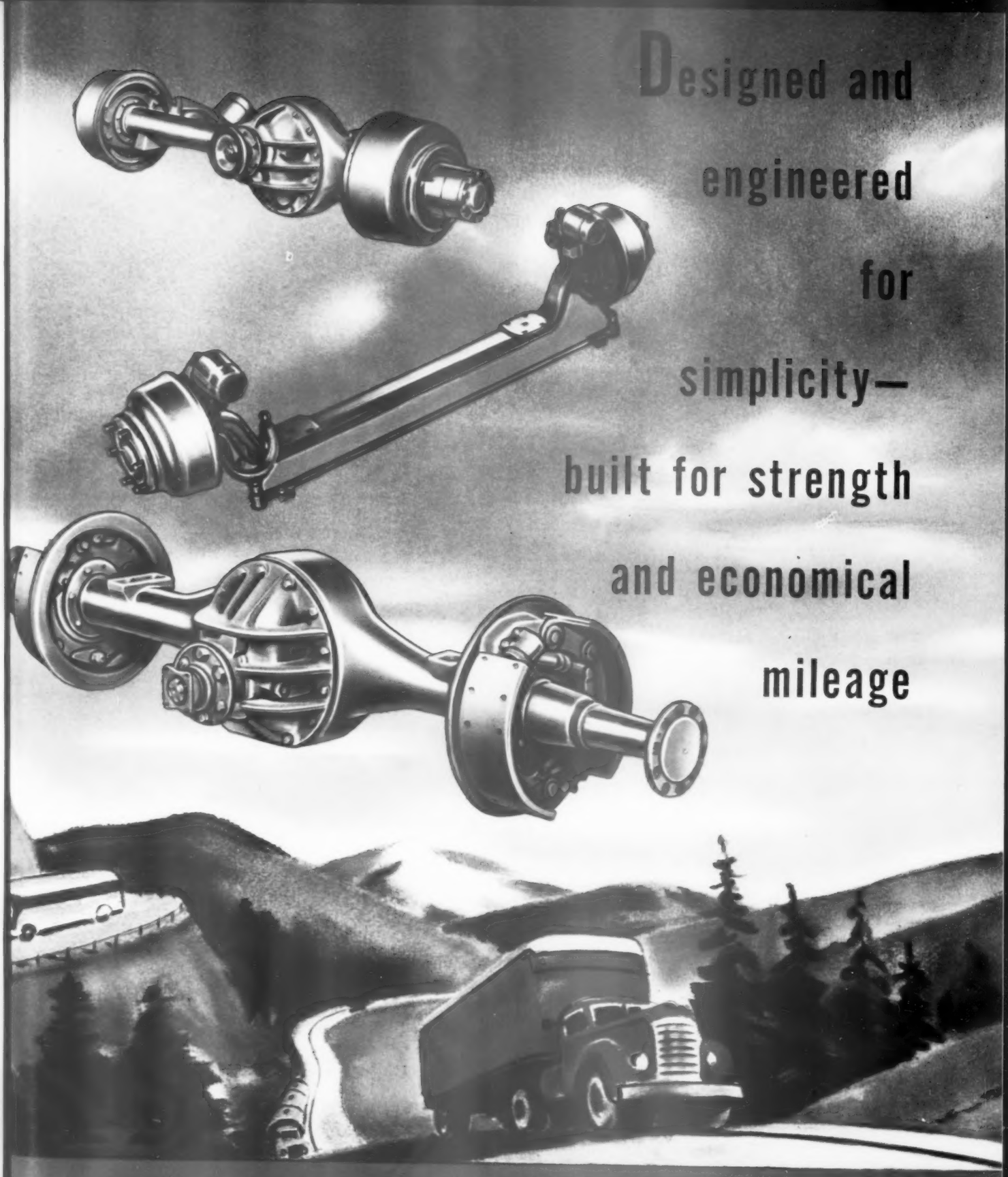
The same effect can be obtained by counterboring the valve guide when it does not project into the port area. On Fig. 9 the illustration on the right shows this operation. A relief may also be applied to the valve as shown in the left. The relief should be a minimum of .010 deep, with a sharp edge on the bottom, which protrudes 1/16 in. out of the guide in the open position. These methods are not recommended as cure-alls, but have been very successful in the past in many instances.

Valve Rotation

One of the greatest developments, that has come to the front in recent years, is valve rotation. Valve rotation prevents the prolonged exposure of any one sector of the valve face to a local hot spot on the seat. Rotation imparts a light wiping action between the valve face and seat, thereby preventing the build-up of deposits between the two surfaces. The elimination of such deposits will preclude the flaking off of some portions which might allow blowby and subsequent burning.

Previously in this paper it was mentioned that a good seat without rotation should be narrow to raise the unit pressure and likewise reduce deposits. This is an engineering compromise because with the narrow

(*Continued on page* 107)



CLARK FRONT AND REAR AXLES

FOR TRUCKS—BUSES AND TRACTORS

CLARK EQUIPMENT COMPANY, Buchanan, Michigan

Other Plants: BATTLE CREEK, JACKSON, BERRIEN SPRINGS, MICHIGAN

FOR MORE ABOUT CLARK →

MATERIAL HANDLING NEWS

Good Planning

STRETCHES WAREHOUSE, SPEEDS DELIVERIES At United Motors Service

It takes thousands of items to provide prompt, adequate service to automotive vehicles—spare parts, sub-assemblies, tools, equipment, supplies; and you find a great many of them in the Fairfax warehouse of United Motors Service, a division of General Motors.

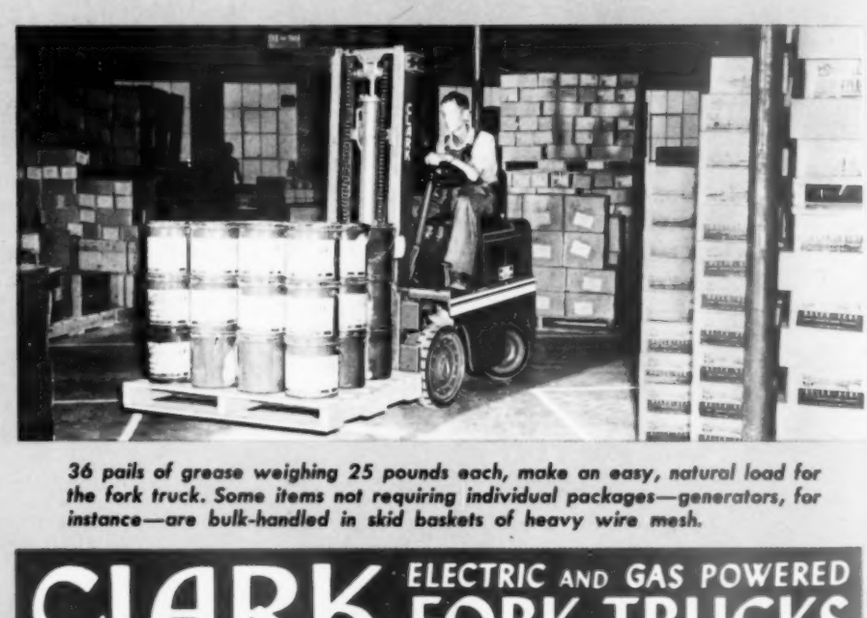
How to store a large and varied stock to permit quick movement into the warehouse and equally prompt withdrawal for deliveries, had become an acute problem. Then Clark fork-lift trucks were installed; they proved to be a practical answer.

Most incoming materials are palletized immediately after unloading and are taken by the fork trucks to designated areas. The palletized units are angle-stacked along 6-foot 6-inch aisles for greatest accessibility, and are tiered to the trusses.

Pleasant benefits are a well-ordered warehouse and low-cost handling; and car dealers' needs are attended to promptly.

WRITE FOR MATERIAL HANDLING NEWS. It gives you "hot news" about how others everywhere are increasing production, decreasing costs. Packed with factual reports, fully illustrated. A request on your business letterhead puts you on our complimentary circulation list.

Out to the shipping floor goes a unit load of Delco-Remy Signals in individual cartons, 36 and 48 to the pallet. Notice the angle-stacking for easier maneuvering in narrow aisles.



36 pails of grease weighing 25 pounds each, make an easy, natural load for the fork truck. Some items not requiring individual packages—generators, for instance—are bulk-handled in skid baskets of heavy wire mesh.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS
AND INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIV., CLARK EQUIPMENT COMPANY BATTLE CREEK 67, MICH.
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PRODUCTS OF CLARK — TRANSMISSIONS FORK TRUCKS & TRACTORS AXLE HOUSINGS
GEARS AND FORGINGS RAILWAY CAR TRUCKS ELECTRIC STEEL CASTINGS
FRONT AND REAR AXLES FOR TRUCKS AND BUSSES METAL SPOKE WHEELS TRACTOR UNITS

ENGINE VALVES

(*Continued from page* 104)

seat there is loss of heat transfer. With rotation the seat can be wide for good heat transfer without danger of building up deposits.

Keeping the seat cleaner leads to better thermal conductivity and results in cooler operating valve heads. Stem deposits are prevented from forming at the top of the guide thus reducing valve sticking to a great extent.

Two types of rotating valves have been developed and are available. The first is the Roto-valve introduced in 1938. As the tappet lifts, it contacts the cap over the valve tip, which lifts the spring retainer slightly, thus freeing the valve from the spring force. Forces inherent in the valve train induce rotation, but this rotation is non-positive. With this design, a hard-faced valve with a hard seat insert is generally necessary.

The other design is a positive type rotator which is called a Rotocap. This device is entirely independent of engine and valve train vibrations and provides positive controlled valve rotation.

Extensive laboratory and field tests with a wide variety of equipment in many types of service have conclusively demonstrated that the Thompson Rotocap will improve valve performance substantially. Valve life has been extended two to five times in many installations.

Summary

In preparing this paper it was intended to review the various materials which are used for automotive valves, indicating some of the advantages as well as the short-comings of each. The practice at the time is to use a plain solid valve. The next step in improvement is to add a hard-facing material to the solid valve. The third step in improvement is sodium cooling. From the field experience we have gained we feel that valve rotation has made a definite contribution to valve life and is here to stay.

In this paper we have indicated fits and clearances which we have found conducive to good valve performance. It is appreciated that keeping the parts within the best working limits is not an easy problem for the operators. However, we know field trouble is expensive, and likewise effort spent toward keeping parts within safe specified tolerances is worthwhile effort toward reducing expense and obtaining a more satisfactory operation. END

$
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Electric **Fuel Pumps** feed a steady, even flow of fuel into the engine. Insure instant starts and peak performance—in any weather, over any terrain.

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America's trucking industry gives direct employment to more than 5,000,000 workers—three and a half times as many jobs as there are in the huge railroad industry.

Texaco Opens Eastern Refinery

The Texas Company has opened a new refinery to serve the eastern marketing area at Westville, N. J., directly across the river from the Philadelphia Navy Yard.

The plant has a daily crude oil capacity of 40,000 bbl., and will process motor gasolines, Diesel and furnace fuels, but not lubricating oils under present plans.

Allis-Chalmers HD-19 tractors with Carco 'dozers. Tractors will be furnished by the Alaska Road Commission.

The Richardson Highway connects coastal Valdez, farthest north year-around port in Alaska, with interior towns and military bases.

Marlin-Rockwell Seeks Status As Private Carrier

Marlin-Rockwell Corporation, Jamestown, N. Y., has petitioned the Interstate Commerce Commission to rule that its operation of a leased tractor-trailer combination between its plants at Plainville, Conn., and Jamestown is that of a private carrier of property.

In addition Marlin-Rockwell has asked also to accord similar status to transportation of cold strip steel, tubing, etc., from plants in Ohio, Pennsylvania, and Connecticut to the Jamestown plant for processing and eventual distribution in the Connecticut operation.

The procedure follows the normal practice of applying for a certificate or permit as a motor carrier, and requesting the Commission to deny the petition on the grounds that petitioner is a private carrier.

Inland Motor Freight Buys 65 Pickups

New pickup trucks, 65 of them, have been purchased by Inland Motor Freight as a part of the company's long-range fleet rehabilitation program.

The trucks are one and one-half and two-ton Internationals with aluminum van bodies built by Brown Trailers and the Alloy Manufacturing Co., both of Spokane, Wash. Inland and a subsidiary, Pacific Highway Transport, will use the new trucks in the Spokane, Seattle and Portland area.

Average age of the trucks replaced is 18 years. The company plans on a 10-year retirement program. The replacements are estimated to save about $6,000 a year on maintenance costs.

West Coast To Build Spokane Terminal

West Coast Fast Freight, Inc., will spend $200,000 for a new terminal in Spokane, Wash. The company expects to call for bids for construction of the 24,000-square-foot building sometime this month. A 7-acre site for the terminal has already been purchased. Building is planned for an early spring start. The two-story building will have facilities for maintaining and storing vehicles.

Dayton Cleans Up With New Equipment

Twenty-two Gar Wood Load-Packers mounted on GMC trucks were placed in operation in Dayton, Ohio, recently. The new Load-Packers were paraded through downtown Dayton as part of the impressive display of new municipal equipment. The Gar Wood Load-Packer is an all-enclosed sanitary garbage and rubbish unit. It has a low loading height and push-button hydraulic operation. Loads are hydraulically compressed into the body by means of a hydraulic ram.

Strickland Builds Freight Terminal

Strickland Transportation Company has constructed a 16-door freight terminal at Third and Miller Sts., St. Louis. C. Fred Ewing is terminal manager for the company which now operates more than 5,626 highway miles as a common carrier.

Bekins Moves Over

A large section of Bekins Van and Storage Company's new 750,000 cu. ft. warehouse in San Francisco has been made available to dealers and distributors of commercial products. Located at 20th and Harrison Sts., the new Bekins warehouse features a covered loading dock to assure uninterrupted operations in all weather.

Short Course For Calif. Supervisors

The seventh annual course for motor vehicle fleet supervisors will be held at the University of California, Berkeley, from Jan. 30 to Feb. 3.

Third Quarter Tonnage Is Up

An increase in the volume of freight hauuled by intercity Class I motor carriers of 6.7 percent for the third quarter last year is reported by the American Trucking Associations over the like period in 1948.

Previously reported increases for the same group of carriers were: 2.9 percent for the first quarter over '48 and 1.9 percent for the second quarter over '48.

An increased movement of special commodities, particularly automobiles, continued to account for a large portion of the general increase. Tonnage hauled by carriers of general freight increased 5.5 percent over the third quarter for 1948.

INDUSTRY REVIEW
(*Continued on page* 110)

"Talk is cheap . . .
It's Performance that counts"

49 MODELS
OVER 425 COMBINATIONS

Pick-ups

Dump Trucks

Stake Units

Buses

Switch to Federals and cut operating costs to the bone.

PUT YOUR MONEY INTO A TRUCK THAT *REGULARLY* DELIVERS THE GOODS!

Record breaking performance under the toughest of schedules and operating conditions . . . low cost-per-mile of operation . . . minimum time out for maintenance . . . these are not idle claims . . . they are what you get when you buy powerful Federal Trucks. And they all add up to bigger and more profitable payloads.

Don't take anybody's word for it! Put a Federal on your toughest run and see for yourself how it out-performs anything in its class. Models range from ¾ to 35 tons, with gross weight ratings available to well over 90,000 pounds. There is a Federal to master practically every on or off the highway hauling job, at a big savings, too. See your nearest Federal dealer for more of the facts that are convincing truck owners from coast to coast that Federal's the buy!

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FEDERAL TRUCKS
Since 1910

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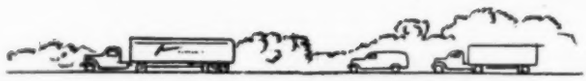
DETROIT 9, MICHIGAN, U.S.A.

For further information on advertised products, use post-paid business reply card, page 72.

INDUSTRY REVIEW...



...ABOUT ASSOCIATIONS...

National Council Holds Convention

The following program has been announced for the eleventh annual meeting of the National Council of Private Motor Truck Owners, Inc., to be held at the Hotel Commodore, New York City, Jan. 26 and 27.

Opening luncheon, Rep. Ralph Gwinn, N. Y., "The Threat of American Socialism."

Closing luncheon, J. W. Myers, manager of insurance and social security, Standard Oil Company of New Jersey, "Problems of Employee Economic Security."

Business meeting program: Walter Belson, director of public relations, American Trucking Associations, Inc., "Improving Truck Industry Public Relations"; Charles Bowling, chief of transportation section, U. S. Department of Agriculture, "Agricultural Interest in the Preservation of Private Carriage"; Edward Lacey, executive secretary, the National Industrial Traffic League, "The Shipper Angle on Private Carriage"; Karl Richards, manager of truck department, Automobile Manufacturers Association, "New Developments and Economies in the Truck Field."

Committee reports and recommendations will be presented by W. H. Ott, Jr., general traffic manager, Kraft Foods Company and chairman of the legislative committee; A. M. Grean, Jr., vice-president, Ward Baking Company and chairman of ICC law committee; E. G. Quesnel, director of safety, The Borden Company and chairman of the highway safety committee.

George Faunce, vice-president, Continental Baking Company and president of the National Council of Private Motor Truck Owners, will preside.

The meeting will open with a luncheon on Jan. 26 and close with a luncheon on Jan. 27.

Officers will be elected at an early morning meeting of the Board of Directors on Jan. 27.

C. of C. To Hold Transport Meeting

The Chamber of Commerce of the United States announced today that a two-day National Transportation Conference will be held in Washington Feb. 1 and 2 to help unify and clarify thinking on major transportation issues.

Such a meeting is necessary, according to the Chamber, in view of the general trend in the problems facing both the transportation industry and its users. Approximately 100 outstanding representatives of interstate carriers, shippers and investors will be invited to participate.

In order to stimulate frank discussion and to achieve the greatest value, the Conference will be devoted largely to roundtable discussions. No record will be taken of the proceedings and no resolutions will be adopted.

Attendance will be by invitation only in order to facilitate discussion and to insure a balance in the representative groups.

Three important subjects to be aired are "Government Transportation Administration." "The Effect of Government Aids on Economic Allocation of Traffic", and "The Relation of Government Aids to National Security."

Highly qualified impartial transportation authorities have been invited to serve as moderators of the roundtable discussions.

An outstanding economist will open the first session with a talk on the changing economic picture. Immediately following this talk, the Conference will review the problems facing the industry.

ATA 1950 Meeting To Start on Sunday

With its successful 1949 annual convention just behind it, the American Trucking Associations have announced preliminary plans for the 1950 meeting at the Waldorf Astoria Hotel, New York, from Oct. 2 to 6.

The major departure in convention practice is starting the meetings on a Sunday, and continuing through the week. For several years ATA has started the annual meeting after midweek in order to take advantage of better hotel accommodations than available over the week-ends.

Registration for the 1950 convention will open Sunday, Oct. 1. Roadeo final championships are scheduled for Wednesday evening, Oct. 4, and the annual banquet for Friday evening, Oct. 6.

Coming Events

JANUARY

16-18 **Truck-Trailer Manufacturers Association**
Annual Convention, Edgewater Gulf Hotel, Edgewater Park, Miss.

26-27 **National Council of Private Motor Truck Owners**
Annual Meeting, Hotel Commodore, New York

27-31 **Local Cartage National Conference**
Convention, Netherland-Plaza Hotel, Cincinnati

FEBRUARY

2-4 **California Truck Associations**
Convention, Santa Barbara

23-25 **Colorado Motor Carriers' Association**
Eleventh Annual Convention, Cosmopolitan Hotel, Denver

APRIL

14-15 **Louisiana Motor Transport Association**
Annual Convention, Bentley Hotel, Alexandria

26-27 **National Highway Users Conference**
Third Highway Transportation Congress, Hotel Mayflower, Washington, D. C.

Ohio Employers Sign Contract

The divide and conquer tactics successfully employed in other fields by union leaders was brought into play at Cleveland late in November by the international officers of the AFL Teamsters Union to force members of the Ohio Over the Road Employers Association to accept the same contract for long distance drivers as is in force in the eleven state area comprising the Central States Drivers Council.

With capitulation by members of the Ohio group, bargaining on a nationwide basis moved one step nearer for long distance truckers.

The Ohio Teamsters Unions, led by Edward F. Murphy, of Cleveland, a member of the Teamsters International Executive Board and of the Teamsters District Council, have in the past insisted upon bargaining on a state basis with Ohio employers and outside the jurisdiction of the Central States Drivers Council, the latter headed by James Hoffa, of Detroit.

Murphy and the Ohio locals were successful until this year. Murphy, ill and in Arizona, was unable to figure prominently in the negotiations.

In his absence, Thomas Flynn, special assistant to the Union's International President Daniel J. Tobin, moved in. He let it be known to both the union locals and to the members of the Ohio Over the Road Employers

(*Continued on page* 112)

HEAVY DUTY OPERATIONS

OVER-THE-ROAD OPERATIONS

HEAVY DUTY STOP-AND-GO

CITY STREET STOP-AND-GO

CITIES SERVICE "CLEAN ENGINE" PROGRAM SLASHES OPERATING AND MAINTENANCE COSTS

Fleet after fleet, operating under nearly every kind of road condition have reduced operating expenses by using the Cities Service "clean engine" method of preventive maintenance.

Here's how it works. First the crankcases of all fleet units are drained. Then the Cities Service engine cleaner, Cisco Solvent, is used to flush out harmful sludge, dirt and power-robbing deposits. The crankcase is then refilled with Cities Service heavy duty motor oil. Next comes the Cities Service Power Prover test. This remarkable instrument is an exhaust gas analyzer. It quickly and accurately determines the exact combustion efficiency of any type gasolene engine. With this information necessary adjustments can be made easily.

From then on all drivers are alerted to oil contamination. The proper oil change period is set up for each unit in the fleet depending upon the age, operating conditions and rate of oil contamination. The Cisco Solvent treatments are repeated after every second oil change. The Power Prover tests are made at scheduled intervals between oil changes to detect combustion inaccuracies before they can do any damage.

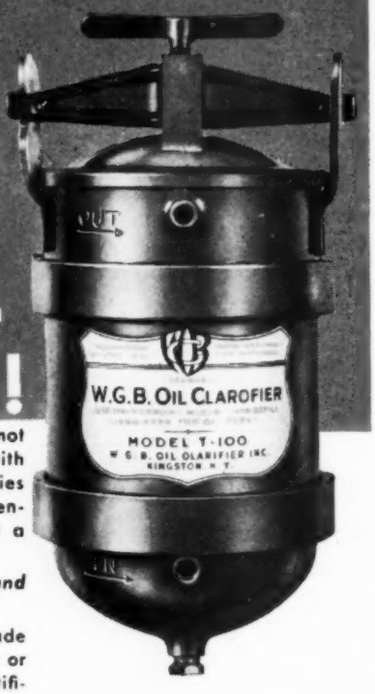
The results of this Cities Service "clean engine" maintenance program have shown lower operating costs per mile...lower gasolene consumption and reduced maintenance and repair expense. Put this program to work in your fleet soon.

A Cities Service representative will be glad to put this program in operation on your fleet (in all Cities Service marketing territories east of the Rockies). Talk to the Cities Service representative nearest you, or write: Cities Service Oil Company, Room **543,** Sixty Wall Tower, New York 5, N.Y.

CITIES SERVICE

Change Oil Twice a Year

—and Still Get ALL the Lubrication GOOD OIL Provides with W.G.B. OIL CLAROFICATION!



With W.G.B. Oil Clarofication, good oil does not wear out — because it's kept clean and pure, with all the essential additives and lubricating qualities left in. Add oil as you need it — and change whenever weather (Summer or Winter) dictates that a heavier or lighter oil be used.

What makes this big saving in operation and maintenance possible?

First . . . the W.G.B. Oil Filter Cartridge is made of a specially processed fine cotton — not paper or so-called modern synthetics. This cotton — scientifically processed to absorb the maximum of engine oil impurities—totally eliminates the grit and grime that add-up to cause engine wear, costly breakdowns and repairs.

Second . . . the W.G.B. Oil Filter Cartridge provides "100% depth filtration," with the oil clarified by passage through the entire element — rather than being merely strained, as in common type, hole-in-the-center filters.

Third . . . the W.G.B. Oil Filter Cartridge contains a greater volume of filtering material than any other cartridge of comparable size, with a patented cartridge support and oil distributor construction.

W.G.B. Oil Filter Cartridges are easiest to replace and cost less per mile!

Substitute cartriages cost more—because they do less. The W.G.B. Oil Filter Cartridge costs less per mile . . . CAN BE CHANGED WITHOUT TOOLS — and lasts 40% longer than any other cartridge of its size.

Write for complete details

W.G.B. OIL CLARIFIER, INC.
KINGSTON, N. Y.

INDUSTRY REVIEW

(*Continued from page* 110)

Association that a condition of a new contract would be the Ohio Long Distance Drivers of the Teamsters Union negotiating through the Central States Drivers Council and the employers accepting the same contracts as had been secured from owners of long distance lines in the eleven state central area.

The employers were faced with a number of small Ohio truck lines owners, not members of the association, signing up with Flynn on the Central States basis.

Members of the Ohio Over the Road Employers Association had from the start of negotiations let it be known they were generally agreeable to a modest wage increase. What they finally signed for was the same terms—8 cents an hour increase in wages with an additional estimated 2 cents per hour to go to a health and welfare program, as owners already under the Central States group had signed for.

With the capitulation in Ohio by both the employees and the employers the International Teamsters Union has, with the exception of the loosely knit groups in the Eastern States, firmly welded the long distance truck operators and the employers into four regional blocks.

With Ohio in the fold, the Central States Drivers Council now represents 12 states, in the Southern Conference are eleven states and the Western Areas firmly controlled by the union, headed by Dave Beck. Once the Eastern Area is brought into the same alignment, the international offices of the Teamsters Union will not only be able to negotiate for all long distance drivers, independent of District or State Teamster Unions Organizations, but will have maneuvered into a position to effect the same sort of a set up for union car haulers and other type union members as well.

Industrial Relations Forum, Jan. 30, 31

A National Forum on Trucking Industrial Relations, the first ever held, sponsored by the Industrial Relations Committee of the American Trucking Associations, will convene in Washington at the Hotel Statler on Jan. 30 and 31. Monday's opening session will be devoted to a panel discussion of "Multi-Employer Bargaining. Good or Bad?" Topics listed for Tuesday's meetings include "Health, Welfare and Pensions," "Avoiding Work Stoppages During Contract Periods," "Secondary Boycotts," and "Preparation and Techniques of Collective Bargaining."

Schuepbach Elected MEMA President

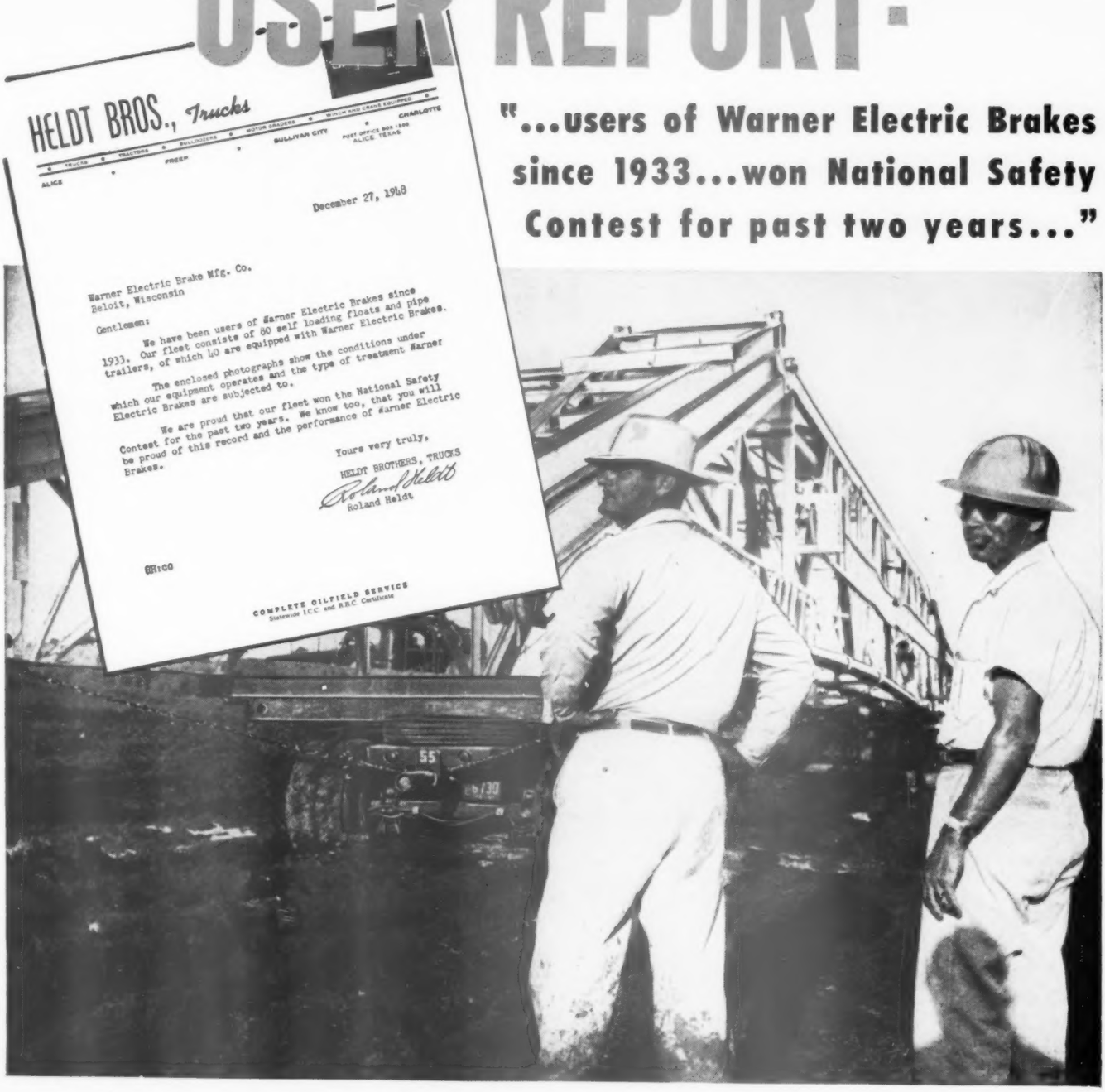
Motor and Equipment Manufacturers Association's officers for 1950 recently elected by the board of directors are C. J. Schuepbach, Sunnen Products Company, St. Louis, president; G. W. Sherin, E. I. du Pont de Nemours & Company, Wilmington, vice-president; C. O. Kleinsmith, National Carbon Company, New York, secretary; C. P. Brewster, treasurer.

Directors are J. W. Anderson, The Anderson Company, Gary, Ind.; G. W. Andrews, Andrews Manufacturing Company, St. Louis; W. S. Coles, The Shaler Company, Waupun, Wis.; G. H.

(*Continued on page* 115)

USER REPORT:

"...users of Warner Electric Brakes since 1933...won National Safety Contest for past two years..."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Warner Electric Brake Mfg. Co.
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Gentlemen:
We have been users of Warner Electric Brakes since 1933. Our fleet consists of 80 self loading floats and pipe trailers, of which 40 are equipped with Warner Electric Brakes.
The enclosed photographs show the conditions under which our equipment operates and the type of treatment Warner Electric Brakes are subjected to.
We are proud that our fleet won the National Safety Contest for the past two years. We know too, that you will be proud of this record and the performance of Warner Electric Brakes.
Yours very truly,
HELDT BROTHERS, TRUCKS
Roland Heldt
Roland Heldt
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COMPLETE OILFIELD SERVICE
Statewide ICC and R.R.C. Certificate

LOOK at that muck and mire! That's the stuff that's sheer murder on men and machines — the stuff you've got to expect when you go after oil — because oil is where you find it. Just ask the Heldt Bros., who specialize in going where oil is — and roads just ain't. That means, too, that trailer brakes must withstand every kind of severe weather and road condition. So take a tip from Heldt Bros. — get Warner Electric Brakes.

Warner Electric Brakes give lightning-fast action with an infinite degree of braking control, plus low-cost installation and maintenance. There's full clearance under the tractor and trailer — nothing to get knocked off or leak — no exposed braking equipment — no rods to rattle — no tubing to split — only simple wiring to each wheel.

For full information see your nearest Warner Electric Brake dealer — or write:

WARNER ELECTRIC BRAKE MANUFACTURING CO.
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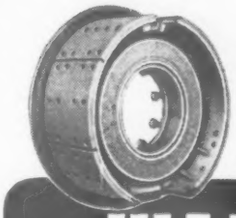

Revolutionary!
Warner Electric Brakes of 2-shoe construction in sizes 16½" x 5", 16½" x 6", and 16½" x 7". A really new concept of super-stopping power. Ask about them.

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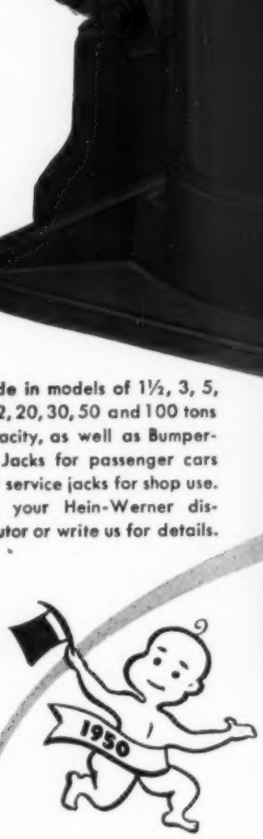
HEIN-WERNER HYDRAULIC JACK

Made in models of 1½, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity, as well as Bumper-Lift Jacks for passenger cars and service jacks for shop use. See your Hein-Werner distributor or write us for details.



NOTE THESE PRICES NOW IN EFFECT ON THE FOLLOWING MODELS!

MODEL	CAPACITY	FORMER PRICE (DEALER)	NEW PRICE (DEALER)
E1.7F	1½ Tons	$ 6.95	$ 5.65
E3.9A	3 Tons	12.10	10.65
E5.9A	5 Tons	14.25	12.80
E8.9A	8 Tons	15.55	14.65
E12.9A	12 Tons	22.65	19.25
20.10AA	20 Tons	36.80	32.50
GA (SERVICE JACK)	4 Tons	127.25	119.25

Hein-Werner HYDRAULIC JACKS

HEIN-WERNER CORPORATION*

WAUKESHA • WISCONSIN

****Hein-Werner also manufactures the complete line of Double-Acting G.A.C. Push or Pull Hydraulic Utility Units for body, fender and frame repairing.***

INDUSTRY REVIEW

(*Continued from page* 112)

Goehrig, Blackhawk Manufacturing Company, Milwaukee; S. G. Phillips, The Dole Valve Company, Chicago; R. A. Stranahan, Jr., Champion Spark Plug Company, Toledo; J. M. Wells, Ingersoll-Rand Company, New York; G. O. Wherley, The Timken Roller Bearing Company, Canton; E. J. Wilcox, J. H. Williams & Company, Buffalo; and Mr. Schuepbach, Mr. Sherin, and Mr. C. O. Kleinsmith.

Benton Is Head Of Accounting Council

New Chairman of the accounting council of the North Carolina Motor Carriers Association is M. C. Benton, Jr., elected at the recent annual meeting to succeed Robert Wren. W. M. Burke was elected vice-chairman and Joe K. Hall secretary and treasurer.

Members considered a proposal to hold a motor carrier accountants' symposium at the University of North Carolina, aimed at stimulating interest among carrier accountants who do not participate in the regular meetings.

Brady To Represent Iowa On ATA Board

John J. Brady, president of the Brady Transfer & Storage Co., Fort Dodge, Iowa, has been elected as the American Trucking Associations' vice-president from Iowa. He succeeds John Ruan, of Des Moines, who was elected fourth vice-president of the national association at the annual convention in Boston.

Delaware Association Plans Labor Council

A labor relations council, similar to one established 13 years ago by the Pennsylvania Motor Truck Association and Local 107 in Philadelphia, is planned by the Delaware Motor Truck Association. The council will become a subdivision of the association and will be for the exclusive use of members who employ union workers.

Credited with providing uninterrupted trucking service in Pennsylvania ever since its conception, the council attempts to arbitrate the numerous complaints and problems that arise in the industry from time to time.

The Delaware group will be composed of a committee elected by the membership in the association. This committee, to which the individual members have delegated authority, sits with a like number of union representatives and attempts to find acceptable solutions to labor problems.

The council handles such things as demands for departures from standard union contracts, granting of minor concessions to individual employers who have suffered hardships under existing contracts, and promotion of highway safety.

Thermoid
BRAKE LINING
Custom Built and Certified for each and every car
Custom Built Thermoid Brake Lining
Road conditioned at the factory to give quick, quiet, even stops.

The One and Only

Thermoid Custom-Built Brake Lining is the one and only brake lining carrying the nationally famous Pittsburgh Testing Laboratory Seal—which certifies the lining in the package is absolutely correct for the brakes with which the car or truck is equipped. Thermoid makes a complete line of specially engineered linings for every car, bus and truck application. For maximum safety, less maintenance, and low operating costs, specify *Thermoid* brake lining—recognized everywhere as "the safest thing on wheels."

Thermoid Company • Trenton, New Jersey

PITTSBURGH TESTING LABORATORY · ANALYSIS · INSPECTION · TESTING · RESEARCH · ENGINEERS AND CHEMISTS ·

Thermoid

Brake Linings • Clutch Facings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Thermoid Precision Process Equipment.

Fendix Joins MEMA

Motor Equipment Manufacturers Association has accepted to membership the Fendix Undercoating Company. Headquarters of Fendix are at 2429 S. Halsted St., Chicago. Eastern division offices, with L. S. Mann in charge, are at 909 Davison Chemical Building, Baltimore.

INDUSTRY REVIEW

(*Continued on next page*)

INDUSTRY REVIEW...

...ABOUT MEN.....

(*Continued from page* 115)

Kleinschmit Heads NSPA For 1950

G. Walter Kleinschmit, an executive of The Automobile Equipment Company, has been elected president of the National Standard Parts Association for 1950. He succeeds C. R. Crowder.

Also elected to top posts are Charles C. Tapscott, advertising manager for McQuay-Norris Manufacturing Company, elected senior vice-president, and

G. Walter Kleinschmit

Fred S. Roberts, vice-president and general manager of Phelps-Roberts Corporation, junior vice-president and director.

Ralph Rapphun has been advanced by Long Transportation Company from manager at Cleveland to western district manager at Chicago. John Fabri, sales representative, succeeds Mr. Rapphun at Cleveland. Walter W. Foreman has been appointed agent at South Bend, Ind.

Fred L. Lockhart has been appointed general traffic manager of Savage Truck Line, operating from Georgia through New York. Mr. Lockhart has been a member of the National Classification Board of the American Trucking Associations.

ICC Chairman

Col. J. Monroe Johnson, wartime Director of the Office of Defense Transportation and member of the Interstate Commerce Commission since June 1940, has been elected the 1950 chairman of the Commission. Col. Johnson was eligible for the post some time ago, but could not take the job because of his ODT duties. Chairman for the past year has been Charles D. Mahaffie.

(*Continued on page* 118)

In Response to the Needs of Particular Body Builders

EBERHARD offers 5 NEW DEVELOPMENTS in TRUCKBODY HARDWARE

EBERHARD No. 5624 UNIVERSAL DOOR LOCK *(Made Expressly for Heavy Duty Use)*

WEB TYPE LOCK HANDLE No. 5621

For use on School Bus Emergency Door. 5/16" Sq. Shank. Horizontal or Vertical mounting. Finish, Plain or Cadmium.

COMPARTMENT LOCK No. 5605

For use on Small Doors and Compartments. Attached by screws, rivets and welding. 5/16" Sq. hole. Lock case 3"x 1".

CAB LOCK *(with Spoon Handle)* **No. 5685**

Largely for inside door applications. Attached by screws, rivets or welding.

EVER-GRIP-HARD Door Lock No. 5625

Rugged for Long Service under hard usage. Right or left, single or double doors. Frost seal breaking action.

(Left) The Universal door lock is the answer to your needs for large door applications. Designed and built for strength with smooth operation. Comes with 5/8" Sq. shank streamlined handle, as shown.

EBERHARD Long Run TRUCK BODY FITTINGS

EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co. 2850 TENNYSON RD CLEVELAND, OHIO

Dependable performance since the horse and buggy days

Long before dusters and goggles were the vogue, Timken® bearings were delivering miles of dependable service in carriages and buggies.

And today, after working hand in hand with the automotive industry for nearly 50 years, the Timken Company continues to be the acknowledged leader in: 1) advanced design, 2) precision manufacture, 3) rigid quality control, and 4) special analysis steels.

Add it all together and you get *dependable bearing performance* — the big reason why Timken tapered roller bearings are first choice with leading truck manufacturers.

Another reason why TIMKEN® bearings are first choice with truck manufacturers

SINCE THEY'RE BEST WHEN THE TRUCK IS NEW ...THEY'RE BEST FOR REPLACEMENT, TOO!

FOR LONG, TROUBLE-FREE SERVICE in your trucks, always replace a Timken bearing with a Timken bearing. You can't beat a Timken bearing for eliminating friction, keeping parts in positive alignment and reducing wear. Always look for the trade-mark "Timken". SEND FOR FREE BOOKLET: *Timken Tapered Roller Bearings, Their Care and Maintenance.* Contains 20 pages of practical tips for mechanics, garage men and fleet operators. Write Dept. OF-1, The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ⊂⊃ THE TIMKEN TAPERED ROLLER ⊂⊃ BEARING TAKES RADIAL ⊡ AND THRUST →⊡← LOADS OR ANY COMBINATION

another tough job made easy with...

NEW OTC TRUCK REAR AXLE BEARING NUT WRENCH

ADJUSTABLE — LETS WHEEL DO THE WORK

Now for the first time *adjustable* wrenches to remove bearing lock nuts and adjust rear wheel bearings on full floating truck axles. Axle nut is tightened or loosened by turning truck wheel.

Sturdily built for long, tough service, each wrench adjusts to several sizes. Four wrenches fit all hex sizes from 2 to 4½ in.

Wrench No.	Adjustable From
1202	2" to 2⅜" Hex
1204	2½" to 2⅞" Hex
1206	3" to 3½" Hex
1208	3⅜" to 4¼" Hex

Another OTC special design that makes a tough job easy—and profitable.

cut tool costs - save time - save equipment

SEE YOUR JOBBER OR WRITE OTC FOR COMPLETE INFORMATION

OWATONNA TOOL COMPANY
304 CEDAR STREET
OWATONNA, MINNESOTA

OTC

THE SIGN OF BETTER TOOLS FOR EVERY JOB

Exide President

S. W. Rolph has been advanced by The Electric Storage Battery Company from executive vice-president to president. R. C. Norberg, former president, is now chairman of the board.

A number of executives with companies supplying the truck industry were elected directors of the National Association of Manufacturers last month. **Howard E. Blood,** of Borg-Warner Corporation, Detroit; **Albert Bradley,** General Motors Corporation, New York; and **J. Warren Kinsman,** E. I. du Pont de Nemours & Company are directors-at-large. Directors for states are **Walter F. Rockwell,** Timken-Detroit Axle Company, for Michigan; **H. E. Humphreys, Jr.,** United States Rubber Company, for New York; **John F. Kidde,** Walter Kidde & Company, for New Jersey; and **James L. Myers,** Cleveland Graphite Bronze Company, for Ohio.

"Man of the Year"

Dale Cox, public relations director of the International Harvester Company, was honored last month by receiving the "Public Relations Man of the Year" award presented annually by the Public Relations Society of America. The citation is "In recognition of his leadership in and contribution to the public relations profession."

(*Continued on page* 120)

INDUSTRY REVIEW

(*Continued from page* 116)

Sherman S. Marr has been appointed sales manager of the Middle Atlantic Transportation Company, Inc., and will have headquarters in Detroit. Mr. Marr has held executive posts with a number of motor carriers.

Julius P. Heil, founder of the Heil Company which makes tank trailers and other heavy equipment, died while returning from a hunting trip. Mr. Heil founded his company in 1901 in Milwaukee. He was elected governor of Wisconsin in 1938 and in 1940.

Herbert R. Otto, Jr., formerly assistant chief engineer, has been named chief engineer of Purolator Products, Inc. He joined Purolator in 1938 as a service engineer.

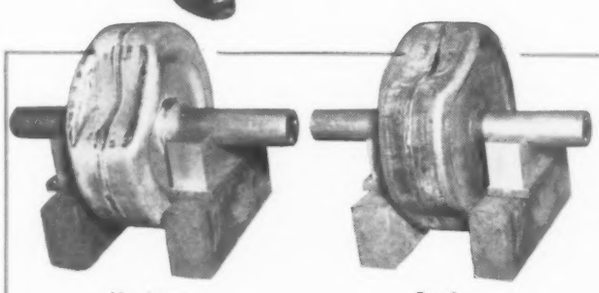
Michael J. Darcey, president of the Darcey Transportation Company, Waterbury, Conn., died in Los Angeles while visiting a daughter.

LANDING LEGS 150 LBS. LIGHTER

...thanks to ALCOA ALUMINUM!

Chalk up another plus for Alcoa Aluminum trailer construction! Now an all-aluminum landing gear assembly, fabricated from Alcoa products, lets you lop off as much as 150 lbs. of dead weight—and add it to payload capacity. Already fully service-proved and installed on leading trailers, aluminum supports quickly pay off their higher cost in added revenues and maintenance savings. They resist corrosion, require no painting.

Join the swing to trailers of Alcoa Aluminum. *Extra* payload is the payoff! Ask your trailer builder for facts and figures that prove the profit advantages of aluminum:



Aluminum Steel

Welded aluminum and steel support wheels after comparable impact tests. Note similarity of results. Aluminum wheel 11 lbs. lighter.

SEND FOR YOUR FREE COPY

of "Payload Proof", Alcoa's new 36-page booklet on aluminum trailers. Performance records, weights, structural information. Write to ALUMINUM COMPANY OF AMERICA, 1861A Gulf Building, Pittsburgh 19, Pennsylvania.

*For local source of supply on ALCOA Products, look under *ALUMINUM* in your Classified Telephone Directory

ALCOA FIRST IN ALUMINUM ...THE METAL THAT *LASTS*

ALCOA ALUMINUM ®

INGOT • SHEET & PLATE • SHAPES, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT-MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS
ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

GUNITE

BRAKE DRUMS

MORE FOR YOUR MONEY

GUNITES deliver more miles per dollar invested. They reduce operating costs by eliminating breakage, by reducing frequency of adjustments and service, and by giving better braking efficiency and longer life. Skilfully engineered designs and material eliminate flex on cam and anchor sides, provide self-lubrication, prevent burned spots. A trial set of GUNITES on a tough run will quickly demonstrate their over-all economy and value. Buy GUNITES — *for better braking!*

MADE BY GUNITE FOUNDRIES ROCKFORD, ILLINOIS

GUNITE BRAKE DRUMS . . . FOR TRUCKS, TRACTORS, TRAILERS *and* BUSES

Factory Rep

The Federal Motor Truck Company has appointed **C. H. Cowan** factory sales representative, to direct factory sales and dealer relations for Wisconsin and Upper Michigan from Oshkosh, Wis., headquarters.

Francis James Hood, 44, president of Ansul Chemical Company, died unexpectedly Nov. 10 while on a business trip in New York City. He had been president for about a year and a half. He had served as vice-president, secretary-treasurer and, was California representative.

William H. Brearley, 75, one of the founders of the Pennsylvania Motor Truck Association, and the retired secretary of The Autocar Company died at his home Dec. 1.

Otto A. Deuchler, formerly secretary of the Charles T. Moebius Trucking Company, Buffalo, and secretary of the Concrete Delivery Company, died recently following a heart attack.

Branch Manager

The Trailmobile Company has appointed **Robert D. Honig** branch manager at Omaha. A native of Omaha, a major in the Armed Services, Mr. Honig has been in sales work for Trailmobile in the Omaha area for the past three and a half years.

(*Continued on page* 122)

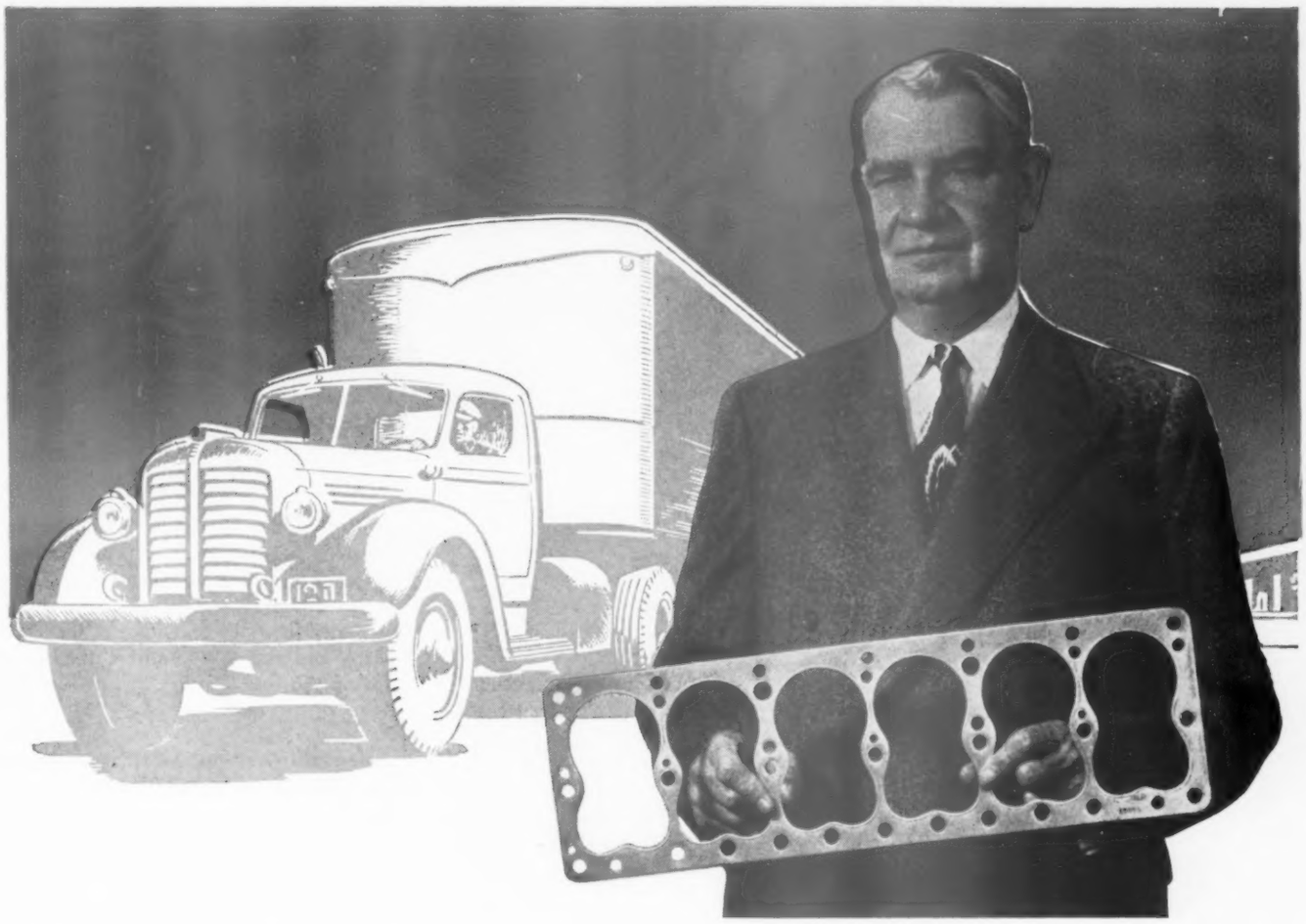
INDUSTRY REVIEW

(*Continued from page* 118)

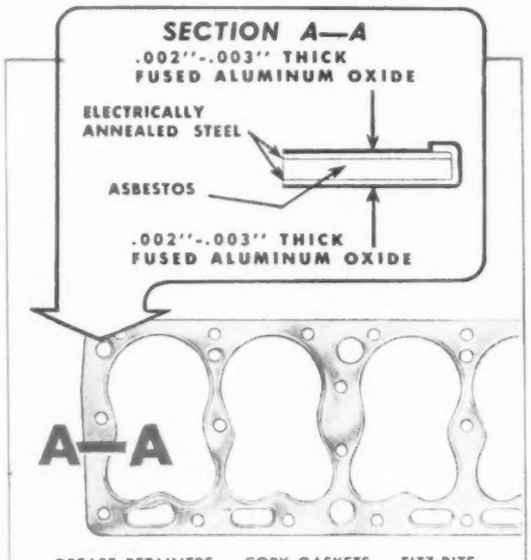
Dayton Rubber Co. has prepared for its 1950 sales and merchandising program with several organization promotions and reassignments. **Carl W. Priesing,** formerly with Ansco Division of General Aniline, has been appointed vice-president and general sales manager. Irve Eisbrouch, vice-president in charge of tire sales, will also take on associate lines such as Camelback, repair materials, and other new products.

Two other changes involved **Leonard C. Strobeck,** vice-president in charge of mechanical sales, who will this year direct all field selling activities and **Herbert S. Waters,** who has been appointed vice-president and director of products.

Carl J. Knurek has been appointed to the staff of the National Automobile Transporters Association as a field representative in the Middle West in the accident prevention division. He has been with Markel Service, Keeshin Motor Freight Company, and Spector Motor Freight.



"One trial and you, too, will sell yourself on.. FITZGERALD Metallic Aluminum-Fused-Oxide Steel Asbestos GASKETS*"



GREASE RETAINERS — CORK GASKETS — FITZ-RITE TREATED FIBER GASKETS FOR OIL, GASOLINE AND WATER CONNECTIONS
COMPLETE SETS FOR MOTOR REBUILDERS

FITZGERALD *Gaskets*
SINCE 1906

SAYS P. J. FITZGERALD

If there has been one single failure of a Fitzgerald Metallic Aluminum-Fused-Oxide Steel Asbestos Gasket* since we introduced them early last year, I haven't heard of it. But I've heard about plenty of gasket trouble that was ended by switching to these new gaskets of ours.

They are built to stand the gaff in high compression engines . . . gasoline or diesel. The combination of rugged steel, fused aluminum oxide and top-grade asbestos filler gives a lasting, perfect seal that stands up under the corrosive effects of the greater heat and the stresses of the greater pressures developed in modern engines.

Users I've talked to tell me that no gaskets they have ever used compare with these new ones.

*Service Mark Registration Pending

President

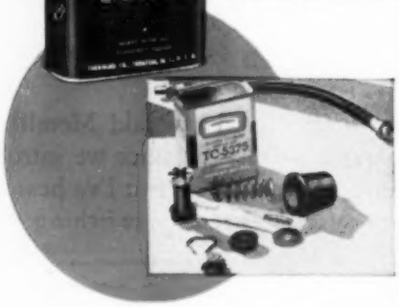
THE FITZGERALD MANUFACTURING CO.
Torrington, Connecticut

"Yes, *Sir!* Meets or exceeds SAE Specifications!

"I'm boss mechanic with an outfit operating one of the largest fleets of trucks in this area. I used to think that nearly all makes of Brake Fluid were pretty much alike—until a few costly breakdowns taught me different. Then I figured that Thermoid's long experience in the field of brake maintenance should enable them to make Brake Fluid that is of dependable quality. So I tried it. Now I use nothing but Thermoid's Heavy Duty Brake Fluid. Yes, sir, Thermoid's HD Brake Fluid is okay. And—*it meets or exceeds SAE specifications, too!*

"Next time you need Hydraulic Brake Parts—order *Thermoid*. Each piece is made to the latest engineering specifications—and it's been my experience that materials and workmanship are the best."

Thermoid Company • Trenton, New Jersey



Thermoid

Brake Linings • Clutch Facings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Thermoid Precision Process Equipment.

INDUSTRY REVIEW

(*Continued from page* 120)

Knickerbocker Motors, Inc., New York, Ford, has made several organization changes. Edward J. Rohan, at one time on retail sales for Buick and Chevrolet, has been named president, succeeding Ray Impellittiere, who becomes vice-president. Marx B. Hausman is treasurer, succeeding the late Robert E. Hannegan.

Ray P. Johnson, vice-president of the Morse Chain Company division of Borg-Warner Corporation and a Borg-Warner director, takes on added duties as administrative assistant to G. A. Shallberg, executive vice-president. Mr. Johnson is a grandson of the late A. L. Johnson who founded the Warner Gear Company that in 1928 became a division of Borg-Warner.

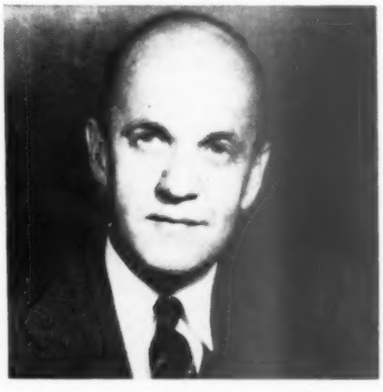
Stephan Polomachak has been advanced by Mutual Truck Parts Co., of Chicago, from assistant sales promotion manager to advertising manager.

Brake Shoe Vice-President

William H. Starbuck has been appointed vice-president of the Kellogg Division of American Brake Shoe Company. He was assistant general sales manager in other divisions of the company, and was a captain in the Army during the war.

Ben H. Grayson, secretary-manager of the Louisiana Motor Transport Association since its founding in 1939, has resigned to take over full-time operation of his Southern Sales Agency, manufacturer's representative for Miro-Flex in Louisiana, Arkansas, Mississippi, and Tennessee.

Roland M. Rice, one time general counsel of the American Trucking Associations, has been elected president of the Association of Interstate Commerce Commissioner practitioners. Mr. Rice now is assistant general counsel for the Association of American Railroads.



Sales Manager

William H. Lukens, formerly vice-president in charge of export sales for the R. M. Hollingshead Corporation, has been appointed general sales manager, a newly created post. He has been with Hollingshead since 1925.

(*Continued on page* 124)

Wise fleet owners install

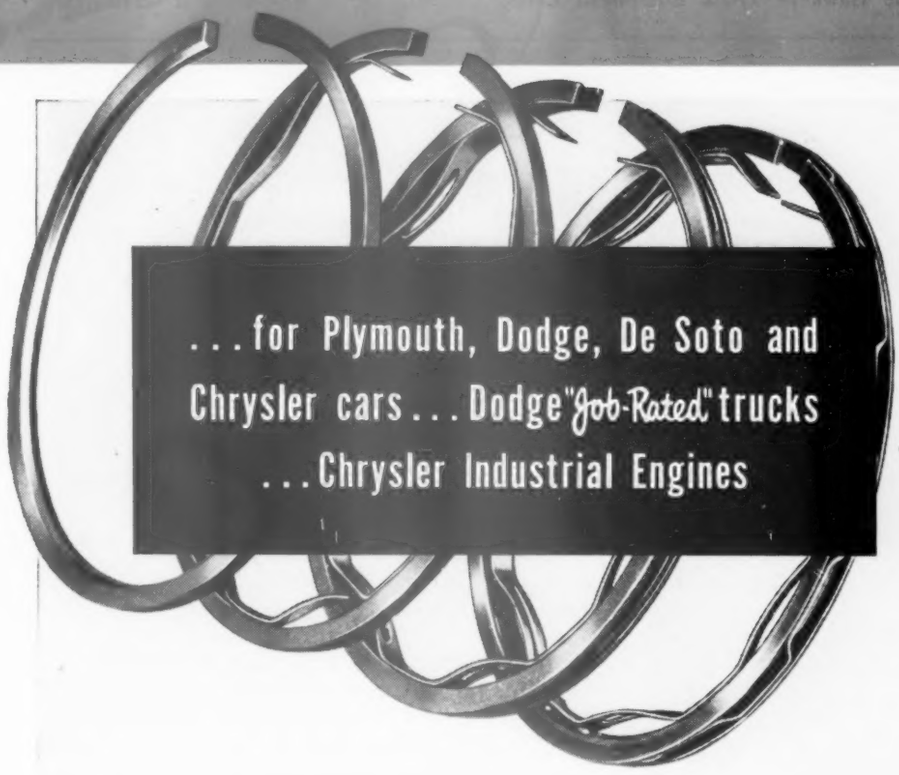
MoPar

POWER-PUNCH PISTON RINGS

ENGINEERED

INSPECTED

SUPPLIED by Chrysler Corporation



. . . for Plymouth, Dodge, De Soto and Chrysler cars . . . Dodge "Job-Rated" trucks . . . Chrysler Industrial Engines

Easy to Use

Convenient packaged sets of MoPar Power-Punch Piston Rings include full installation instructions.

Easy to Get

You can get MoPar Power-Punch Piston Rings from dealers handling Chrysler Corporation-built vehicles.

TWO TYPES AVAILABLE

1 **OIL SAVER SETS** *for new or re-bored cylinders.* Engineered to seal compression, allow lubrication of cylinder wall, prevent scuffing, control oil consumption.

2 **OIL MASTER SETS** *for re-ring jobs.* Restore compression and oil economy without reboring, prevent scuffing, allow necessary cylinder wall lubrication.

You can get MoPar parts from dealers FOR

PLYMOUTH • DODGE • DE SOTO • CHRYSLER CARS

DODGE "Job-Rated" TRUCKS

also

from most independent garages

USE CHRYSLER CORPORATION MoPar PARTS AND ACCESSORIES FACTORY ENGINEERED AND INSPECTED

INDUSTRY REVIEW...

...ABOUT MANUFACTURERS

(*Continued from page* 122)

Brown Trailer Names Two Distributors

Brown Trailers, Inc., Spokane, Wash., and Toledo, Ohio, has appointed the Hawkeye Truck Equipment Company as its independent distributor in Des Moines. Hawkeye has been selling and servicing truck dealers and fleets throughout Iowa for 15 years. It is headed by V. N. Abram and John H. Gillespie.

Mr. Abram was the fleet service superintendent for Meadows Transfer Company of Des Moines, and at one time was service manager of the Mack Truck Corporation.

Mr. Gillespie was district manager of the ODT. He is a former executive secretary of the Iowa Motor Truck Association.

Adding still further to its constantly growing family of independent distributors, Brown Trailers, recently announced the appointment of the Omaha Body and Equipment Company, of Omaha, as distributor in that area.

Trucks Standing Idle Too Much??
IF SO, YOU WANT TO KNOW—
WHEN?
HOW LONG?
and WHY?
IDLE—40 Minutes
IDLE—15 Minutes
IDLE—1 Hour 20 Minutes
IDLE—2 Hours
Well, first you must be able to SEE all the delays. You'll never be able to correct lost time which you don't know anything about! If you don't even know when these expensive idle periods are occurring, they will keep right on eating into your carefully planned delivery schedules.
But, equipped with the SERVIS RECORDER, you can know each day all delays and idle time—exactly as if you were riding on the truck yourself, all day long. Even better, the Servis Recorder gives it to you on paper—a graphic chart of what the truck did all day—a permanent record that you can file away for monthly study and comparison.
Besides checking idle time, the Servis Recorder helps in nine other ways—all fully described in our booklet—"Ten Ways of Getting More Work Out of Motor Trucks." It's free.
THE SERVICE RECORDER COMPANY, 1375 Euclid Avenue, Cleveland 15, Ohio.
The Servis Recorder
Tells Every Move Your Truck Makes

Gumout Sales Has 9 Representatives

Nine new sales representatives have been appointed by the Gumout Division of Pennsylvania Refining Co. They are: L. H. Cox Associates, 626 Erie St., Minneapolis; F. Somers Peterson Company, 524 Folsom St., San Francisco; James H. Page, 827 Locust St., Denver; Winkenweder & Ladd, 1421 S. Michigan Ave., Chicago; Rice Brothers, Portland and Seattle; E. M. Arnold, Pittsburgh; Schade Sales Company, 407 Chester Ave., Moorestown, N. J.; Lew Brown & Company, 505 Elwood Bldg., Rochester, N. Y.; and The Saunders Company, Greensboro, N. C.

To Aid Distributors Sell Mack Trucks

Albert G. Crockett as manager of Distributor Sales now heads up Mack-International Motor Truck Corporation's U. S. and Canadian wholesale organization of about 500 distributors.

Mr. Crockett joined Mack in 1927 in the sales promotion department, became acting manager in 1943; served three years in the office of the Assistant Secretary of the Navy; was prominent in Mack's "Keep 'Em Rolling" wartime activity; lately was director and lecturer of Mack's Diesel engine caravan tour.

(*Continued on page* 126)

extra service life is a cinch with BENIUM*

BENIUM* *Heat-resisting material is the secret ingredient developed by the Marshall-Eclipse Division of Bendix and used exclusively in Eclipse brake linings and heavy-duty brake blocks.*

Here's one claim you can prove yourself—with your own tests on your own trucks. Just install Bendix Eclipse Brake Blocks on a regular run, check the mileage, then sit back and watch. The extra control with those smoother, safer stops will be apparent immediately, but the most important difference you will notice is the added road life—those extra miles just keep on rolling by. When you check the totals, you'll be amazed at the difference *Benium*makes. Give it a try. You'll agree—extra service life is a cinch with Bendix Eclipse Brake Blocks.

Bendix Eclipse

BRAKE BLOCKS

PRODUCT OF

the Greatest Name in Braking!

MARSHALL-ECLIPSE DIVISION OF
TROY, NEW YORK

Bendix
AVIATION CORPORATION

For further information on advertised products, use post-paid business reply card, page 72.

NEW SPECIFICATIONS

the
YANKEE
"920"
FLASHING TRUCK
DIRECTIONAL
SIGNALS
AMBER LAMPS (front)
RED LAMPS (rear)
for use
on any
truck
in any
state
contact
YANKEE
today!
Yankee "920"—the complete 4-lamp set with flasher switch and wiring—is the last word in truck directional signals . . . meets the new S.A.E. specifications for all Class A vehicles, those over 80" in width. New type 4½-inch lamps are finished in black baked enamel over corrosion-resistant "bonderized" steel. The "920" is a money item—cash in on it.
YANKEE METAL PRODUCTS CORP., NORWALK, CONN.

INDUSTRY REVIEW

(*Continued from page* 124)

Sun Adds 3 Courses To Training Schools

To supplement its regular "On-the-Job-Training" course, Sun Electric Corporation has announced three new courses of instruction for automotive service men, consisting of: (1) a specialized 4-week engine diagnosis course, (2) an intensive 5-day course on test equipment operation, and (3) a special fleet maintenance course.

At present there are Sun schools in New York, Pittsburgh, Atlanta, Detroit, Chicago, Denver, Los Angeles, Oakland, and Seattle. Kansas City and Dallas schools are expected to open early this year.

The 4-week diagnostician course is now offered at the Detroit training center. The one-week operator's course is available at all Sun Schools. The fleet maintenance course is available on request in all the larger schools.

Special brochures covering the details of these new courses are available from the Sun Technical Training Headquarters, 6323 Avondale Ave., Chicago 31.

Cherry Rivet Opens Three Branch Offices

Three branch offices have been opened recently by Cherry Rivet Company, in New York, Los Angeles, and San Francisco. C. R. Sands will be in charge of the sales office and warehouse at 1011 Golden Gate Ave., San Francisco. Southern California sales and service will be handled by Phillip Shepherd, from 231 Winston St., Los Angeles. The New York sales and warehouse is at 69 Harney Rd., Scarsdale, N. Y.

Kelsey-Hayes Moves To Los Angeles

Kelsey-Hayes Wheel Co. has moved its San Francisco plant to Los Angeles, expanded to 110,000 sq. ft., and began production early this month of brake drums, power brakes, and hubs. Hubs and drums will be manufactured for various automobile assembly plants in the southern California area. Power brakes will be distributed to jobbers and trailer manufacturers.

This is Kelsey-Hayes' only plant west of the Rockies. It is at 2665 Leonis Blvd., Los Angeles.

Industry Output At New High Mark

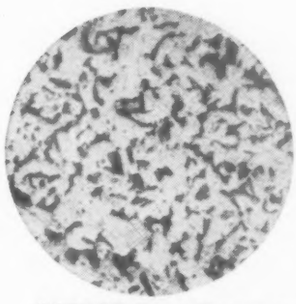
Automobile Manufacturers Association reports that 52 new motor vehicles a minute, or nearly one every second, were turned off assembly lines each working day during the first ten months of 1949. The industry smashed all previous annual production marks, turning out 5,430,093 cars, trucks and buses, AMA's official monthly factory sales report shows. It tops the 1929 full-year record by more than 72,000 units.

Bear Dedicates New School Building

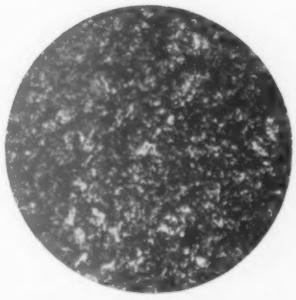
Bear Manufacturing Company called upon two nationally known speakers to headline the recent three-day dedication program for the new $400,000 Automotive Safety Service School build-

(*Continued on page* 128)

TRY THIS ON FOR GRAIN SIZE!



BEFORE Heat Treatment



AFTER Heat Treatment

(BEFORE and AFTER photomicrographs above show how Parish Heat Treatment refines the grain size of the steel to give it full strength.)

On heavy duty jobs where you need *frames with extra resistance to fatigue and crystallization*—you get these advantages when you specify Parish *Heat Treated* Steel Frames:

- *Light weight* Parish side rails are designed in thin sections, with heat treatment used to bring out full strength of the steel.
- *Low cost maintenance* results with the extra margin of safety you get in Parish Heat Treated Heavy Duty Frames.

USE THIS PARISH ENGINEERING SERVICE FOR HEAVY DUTY TRUCK OPERATORS . . .

For help with a frame maintenance problem or a special frame engineering job, make use of the Parish Engineering Service Department. Write us about your problem and we will go to work on it at no obligation to you.

For printed information to help the men in your shops, write for the Parish Welding Bulletin. It shows how to get best results when alterations are made on heat treated steel frames.

PARISH PRESSED STEEL COMPANY
subsidiary of Dana Corporation READING, PA.

Western Representative: **F. SOMERS PETERSON CO.**
524 Folsom St., San Francisco, Cal.
413 East 12th St., Los Angeles, Cal.

ONLY PARISH STEEL HEAT TREATED HEAVY DUTY FRAMES GIVE YOU THE STRENGTH OF STEEL at no sacrifice of payload!

INDUSTRY REVIEW

(*Continued from page* 126)

ing at 2103 Fifth Ave., Rock Island, Ill.

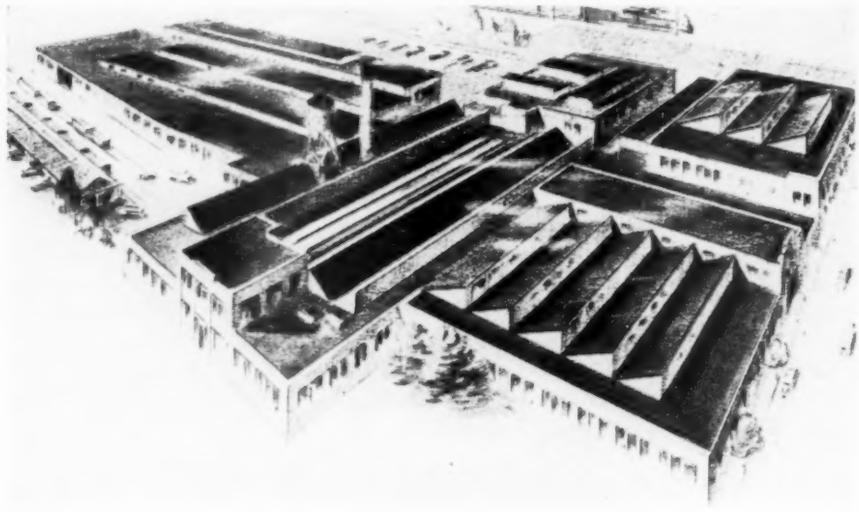
Wilbur Shaw, president and general manager of the famed Indianapolis Motor Speedway and three-time winner of the annual 500-mile race, spoke before a joint luncheon meeting of Rock Island service clubs in the auditorium of the new building. Paul E. McDonald, director of training for General Motors Corporation, spoke at a dinner. More than 300 leaders in the automotive industry, and Bear representatives and distributors visited Rock Island for the dinner event.

The Bear school, the only one of its kind devoted exclusively to the teaching of wheel alignment, wheel balancing, frame straightening, steering and motor vehicle safety inspection, attracts from 900 to 1,000 students a year from all over the world. Seven different courses are offered in the school, ranging from one to four weeks. It was started 20 years ago in a little shop in the rear of the factory.

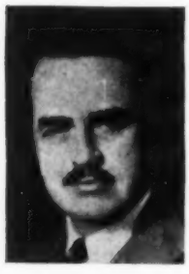
Black & Decker Moves Atlanta Branch

The Black & Decker Mfg. Company, of Towson, Md., has moved its factory sales and service branch in Atlanta to 316 Techwood Dr., N. W.

The branch has factory-trained personnel for the repair and service of the company's products. Facilities include a showroom for display of portable electric tools, and ample parking space for customers. A. Lee Proctor is the branch manager.



Purolator Product's New Home



Purolator President

"Moving Day" for Purolator Products, Inc., will extentd over the next few months as manufacturing, engineering, research, and office facilities now at several locations in Newark are to be consolidated at one plant in Rahway, N. J.

Growth of the company, which started in the oil filtering business in 1923 as Motor Improvements, Inc., makes consolidation advisable. The former plant of the National Pneumatic Company has been purchased. About 300,000 sq. ft. of modern production and office space, mainly on one level, will be available. The company is disposing of properties in Newark.

The move will be gradual so production schedules will not be disturbed. The company's 1,100 employees are to be transferred.

"Under our new advertising and sales promotion policy, the outlook very definitely is one of further growth in the years ahead," said Ralph R. Layte, president, estimating 1949 sales at about $12 million, a peacetime record.

"Obviously, under the circumstances, our only course is to integrate our operations and thus provide immediate facilities for expanded production."

The company has central sales headquarters in Los Angeles, Detroit, and Chicago. Purolator Products (Canada) Ltd., has a new plant in Toronto.

Budd Wheel distributors can provide the same kind of service described in this advertisement

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Cruse-Crawford Wheel & Rim Co.
BOSTON—New England Wheel & Rim Co.
BUFFLAO—Frey, the Wheelman, Inc.
CHARLOTTE—Carolina Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
FARGO—Wheel Service Company

BUDDW

GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Wheel & Rim Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel, Inc.
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MINNEAPOLIS—Wheel Service Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Peoria Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robblees, Inc.
PROVIDENCE—New England Wheel & Rim Company
RALEIGH—Carolina Wheel & Rim Co.
RICHMOND—Dixie Wheel Co.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel, Inc.
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robblees, Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robblees, Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Borbein, Young & Co.

EXPORT
CLEVELAND—C. O. Brandes, Inc.

CANADA
CALGARY—Fisk Tire Service Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—General Auto Equipment Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.

DWHEELS LICK A HEX

Ralph Hunsicker, president of Standard Wheel & Rim Company, Budd wheel distributors in Harrisburg, Pa., writes: "When I met Marlin Frantz, he was convinced that either there was no such thing as a good tire, or his recent venture into the trucking business was 'hexed'." (In the Pennsylvania Dutch country one 'hex' equals ten jinxes.)

"Seems he'd bought a truck in March 1947 to go into the general freight business. In 65,000 miles he bought 20 tires of various makes! With seven blowout adjustments pending, Mr. Frantz bought another make of tire. An extra volume, rayon, premium tire. Lasted 4000 miles.

"Well that was too much for the tire supplier, and he called us for a wheel check. Sure enough—old style rims. We fixed Mr. Frantz up with the correct size Budd wheels with wide base, tapered bead seat rims, and at last reports he'd gone 60,000 miles without tire trouble of any kind."

We're glad to tell about what Budd distributors do for operators of only a few trucks—or in this case, just a single one. Shows that the little fellow gets exactly the same expert attention the big fellow gets. You can count on it. Just try the Budd wheel distributor near you. He's listed in the adjoining column. The Budd Company, Detroit 14.

Look for this label
(in blue, red and gold)
on the rim of every genuine Budd Wheel

FROZEN FRUIT JUICES

(*Continued from page* 53)

truck service is a decided advantage. A reefer can be loaded in Tampa, temperature checked at zero, and the sleeper-cab unit rolls into Chicago on the third morning. Trucks generally are about two to three days faster than rail shipments.

Tariffs are lower by truck, but the big factor in highway transport is the ability of the reefer to maintain zero temperatures. Fruit juice concentrate requires the lowest of all temperatures in the frozen food field. It slushes at around 12 to 15 deg. F. on account of the acid and sugar content, hence is handled at around zero right up to retail store distribution. Other forms of transportation in the summer time with the best of salt-ice mixture can drop a refrigerator car down to only around the critical temperature.

The reliability of truck transportation is attested by the experience of Birds Eye-Snider Division of General Foods Corporation. Birds Eye has had no in-transit loss on account of thawing. The company has made a thorough study of its transportation requirements, especially to make sure the cargo is loaded correctly. In the case of concentrates the corporation specifies a few inches of air space all around, for circulation of cold air.

Distribution of the concentrate is made by food marketing organizations from cold storage warehouses to retail stores. Birds Eye uses small trucks, well insulated, and the concentrates keep cold without any cold-holding equipment on the trucks, as the vehicles are not out more than three hours at a time.

New Distribution Method

Distribution with a driver-salesman handling the truck has been successful, the Minute Maid Corporation announced last month. The plan was tried for four weeks, then extended throughout its New England operations. Sixty trucks are operating from six distributing outlets, serving about 10,000 retail outlets. The company estimates that orange juice concentrate accounts for 35 percent of its total tonnage and 50 percent of total dollar volume of frozen fruits and vegetables. Driver-salesman distribution has stepped up sales about 40 percent, and the company now has a special cold cabinet deal for retailers to stock and display frozen juices. Direct truck sales-distribution is possible, the company points out, since sales of frozen juice concentrates are so large.

Right now the juice concentrate industry is centered in Florida. This growing area, with freezing plants near the fruit trees supplies the eastern seaboard area, and fans out into the middle west. California also has concentrate plants, supplying the Los Angeles market, with interstate truck movements north and east.

Texas is delving more deeply into the citrus fruit industry, and when production reaches its stride watch for tremendous truck movements out of this area.

Concentrates are made of orange, lemon, grapefruit, and combinations of orange and grapefruit juices. Florida is quite particular about the

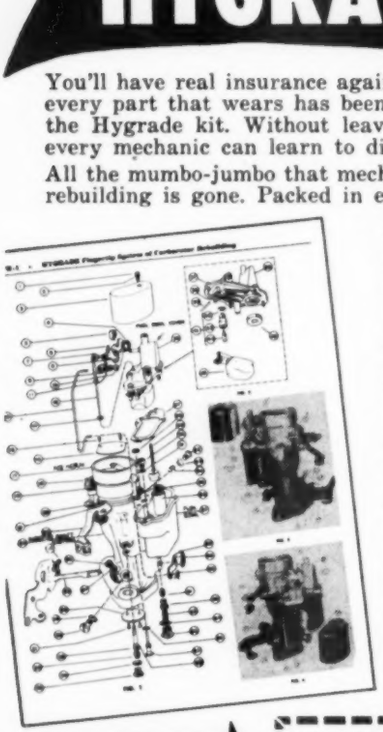
(*Continued on page* 132)

Now you can easily rebuild carburetors in your own shop with the new

HYGRADE FINGERTIP SYSTEM

You'll have real insurance against "down-time" because you *know* that every part that wears has been replaced with a *brand new part* from the Hygrade kit. Without leaving the shop – in a matter of hours – every mechanic can learn to dis-assemble and rebuild a carburetor.

All the mumbo-jumbo that mechanics used to associate with carburetor rebuilding is gone. Packed in every kit are clear step-by-step instructions, arranged in sequence of assembly which tie in with large exploded-view drawings and photos. The location of parts on these pictures is so easy that parts practically fall into place by themselves.



THE HYGRADE FINGERTIP KIT

ALL THE PARTS the mechanic needs for rebuilding a carburetor are literally at his fingertips...packed and labeled in separate envelopes for each assembly operation. Work is done step-by-step, envelope by envelope. (As each assembly operation is completed all the parts in that envelope are used up.)

For real insurance against "down-time", write us – giving the make and model of one of the carburetors you use. We will send a sample instruction sheet. Convince yourself by actual test, how easy carburetor rebuilding can be.

SAVE GAS • SAVE ON DOWN-TIME

FREE!
SEND FOR SPECIMEN INSTRUCTION SHEET

HYGRADE PRODUCTS DIVISION
35-41 Thirty-fifth Street
Long Island City 1, N. Y.
Send me a Hygrade Fingertip Instruction Sheet on rebuilding Carburetors for model .....
Make ..... Part no. .....
Firm name .....
Attention of .....
Address .....
City ..... State .....

Hypoid gear teeth surfaces are exposed to severe sliding and rubbing action, as well as pressure. They require a powerful, extreme-pressure lubricant. Protect hypoid gears with finest Quaker State Super Quadrolube, especially designed for this heavy-duty purpose.

Quaker State makes not one, but several different grades and types of lubricants, each designed for a particular purpose, all of outstanding quality.

Quaker State
Super Quadrolube

Quaker State
Viscous Lubricant

Quaker State
Wheel Bearing Lubricant

Quaker State Superfine Lubricants

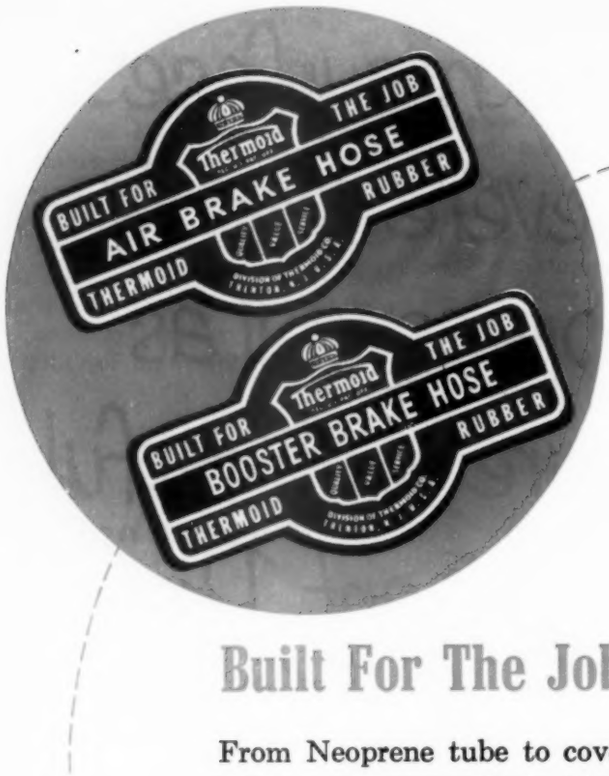
You can use each of these specialized lubricants profitably in your equipment.

Quaker State
Quadrolube

Quaker State
Waterproof Lubricant

Quaker State
Universal Joint
Lubricant

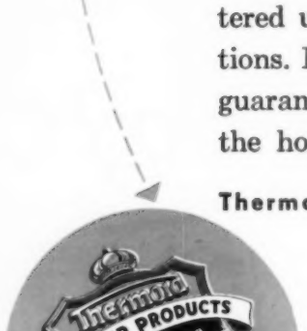
Quaker State
EXPP2 Lubricant



Built For The Job!

From Neoprene tube to cover, Thermoid Air Brake and Booster Brake Hose is engineered to give long, trouble-free service. It is constructed to meet the most exacting demands encountered under the most severe operating conditions. Look for the Thermoid seal—it is your guarantee of quality—value—and service in the hose you buy.

Thermoid Company • Trenton, New Jersey



Thermoid

Brake Linings • Clutch Facings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Thermoid Precision Process Equipment.

FROZEN FRUIT JUICES

(*Continued from page* 130)

quality of its products, requiring statements on bills of lading about the concentrate coming from inspected fruit and showing destination of cargo.

Two factors indicate sound growth of this market.

First, price to the housewife. Orange juice concentrate costs under 30 cents in the retail store, enough to make the equivalent juice from about 18 fresh oranges which would cost at retail around 90 cents. No comment is necessary as to the attractiveness, price-wise, of concentrates.

Second, there is the continuing expansion of retail stores handling frozen foods. A few figures illustrate the point. A Department of Agriculture survey shows that last April 16.9 percent of the retail food stores in a sampling handled orange juice concentrates while 24.5 percent handled it in August. A year ago a chain in Washington, D. C., had five stores handling frozen foods. Now 86 stores have frozen food cases. Bureau of Labor statistics for 56 cities show twice as many stores with frozen food cabinets now as in 1944.

There are about 360,000 retail food outlets in the country, many of them small, and at present about 90,000 sell frozen foods.

The canning of fruit juice, to avoid transportation of waste products, has been under consideration for many years. Considerable amounts of money, running into the millions of dollars, have been spent in research work. Concentration of the juice on a 3 to 1 ratio, and quick freezing evidently is an answer for a product that has a fresh fruit flavor when consumed thousands of miles from the squeezing operation.

The first year of marketing concentrates was mainly a testing of the product on potential consumer demand. The first actual full blown season was in 1949.

Our final figure illustrates the concentrate potential which is the key to demands that will be made on truck transportation. A box of fresh fruit, about 1⅗ bu., yields about a gallon of concentrate. Last year 5½ million boxes went into concentrate plants. The new season starting this month is estimated to require 25 million or more boxes. And that is a lot of juice when three parts water is added, and lots of trucking of the concentrate.

LUBRICATION

(*Continued from page* 72)

rect hoist is important to the most efficient operation of the lubrication department.

Power Guns—Power guns for dispensing chassis lubricant are available in stationary or portable models. Guns develop a grease pressure that is 33 times the normal pressure from the shop air line. Use of these guns practcially eliminates the chance that so-called "frozen" shackles, etc., will be left with inadequate lubrication. Usually the power gun is filled manually or by a filling device. As a general rule, these guns use some type of detachable automatic priming power

head, together with an air-primed lubricant magazine. These guns are capable of handling all types of pressure gun greases and gear lubricants which seek their own level.

Adjustable metering or control valves can be used with power guns, set to deliver a continuous flow of lubricant or to deliver a wide range of measured shots. The advantage of the measured shot is the saving of lubricant as a particular bearing may require only one shot, whereas otherwise more lubricant would be forced through the bearing and wasted.

Heavy-Duty Barrel Pumps—Where lubrication must be done in large volume at high pressure, or where operating conditions are unusually severe, heavy-duty barrel pumps are recommended. These pumps handle lubricant direct from the original containers and are capable of serving one or more outlets in a pipe system.

Gear Lubricant Pumps—The gear lubricant dispenser delivers gear lubricant by volume but at low pressure direct from the original container to the gear housing, transmission, or rear axle. This eliminates transferring lubricants from a drum to a special filler device. These pumps are available in hand-operated or air-operated models and may be stationary or portable.

Gear Flushing Equipment

Gear Flusher—An air-operated gear flushed provides positive, thorough flushing of rear axles, transmissions, and other gear housings. Usually gear flushers are available with two-way action. First, the flushing compound is forced into the gear housing, washing the gears. Next, a suction is applied to the nozzle and all the dirty fluid is drawn out of the housing. This insures the removal of all injurious foreign matter, sludge, and old lubricant, which should not mix with fresh lubricant.

Wheel Bearing Service Unit—The wheel bearing service unit is used in cleaning and repacking front-wheel bearings. Generally these units provide a container for washing the bearing, a gun for flushing the bearing, and a second gun for dispensing fresh lubricant to repack the bearing under pressure. A wheel bearing service unit provides positive lubrication because fresh lubricant is forced

(*Continued on page* 135)

"IN PARTNERSHIP"
WITH
Leading Builders of Motor Vehicles

Continental Motors' Red Seal trademark has stood as an emblem of quality ever since the dawn of this automotive age.

It was helping to sell cars, and keep them sold, long before the advent of such things as comfort and style—back in the days when the prospective buyer asked just one thing: "Will it run?" Word got 'round early that the engine with the Red Seal name plate ***ran***—and that it kept on running for a long, long time.

The statement applies with greater force now than ever. Continental Motors has not only kept abreast of technological progress, but has constantly expanded its line to meet changing needs.

Today, the company's "partnership" with leaders in industry spans a broad and diversified range of power applications. Red Seal engines are building acceptance and prestige for manufacturers, not only of vehicles, but of farm tractors and implements, industrial trucks, conveyors and materials-handling devices, pumps, mixers, compressors and other street and highway building and maintenance equipment, construction machinery, personal and executive airplanes, and marine craft of various types. The list of Continental customers stands at an all-time high.

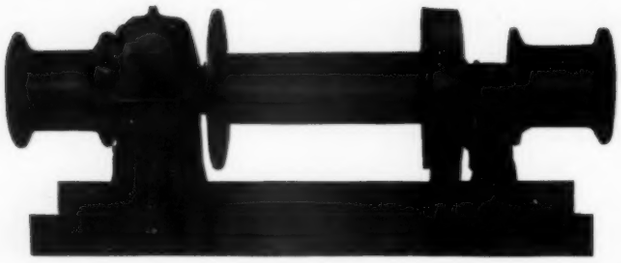
To those customers, the makers of Red Seal-powered equipment, as well as to ***their*** customers, whose preference guides the choice, I add my personal pledge to the pledge of our Continental family, that Red Seal quality pre-eminence will be zealously maintained.

President

RED SEAL ENGINES

Continental Motors Corporation
MUSKEGON, MICHIGAN

For further information on advertised products, use post-paid business reply card, page 72.



MODEL M9-18B

● **MODEL M9-18B (at left) Rated Capacity or Safe Working Load: 18,000 lbs. Ideally suited for use on 1½ and 2 ton trucks. The famous BRADEN OIL-COOLED, FULLY ADJUSTABLE, AUTOMATIC SAFETY BRAKE is standard equipment.**

OPERATION SAFETY

Shown here is an exploded view of the OIL-COOLED, FULLY ADJUSTABLE, AUTOMATIC SAFETY BRAKE. No detail has been overlooked to manufacture a precision-built brake that is unsurpassed for safety.

● Life, limb and property are often dependent upon the efficiency of a truck winch safety brake. That's why BRADEN has taken so much pains to perfect a *truly* SAFE brake that can keep the load under complete control at all times.

Ask Any Truck Winch Operator

● Write for FREE eight page cartoon booklet entitled "A Story of the Safest Winch Safety Brake." Write Department F-1.

BUY BRADEN—They Are Safer

BRADEN WINCH COMPANY — **TULSA 1,**

Post Office Box 1709 — Oklahoma

BRADEN *Winches*

IN SERVICE AROUND THE WORLD

LUBRICATION

(*Continued from page* 133)

into all parts of the bearing after the bearing is washed and flushed.

Spring Packer and Spring Lubrication Clamp — The spring packer, along with a special spring lubrication clamp, is essential when units with metal covered springs are serviced. The spring packer is designed to handle the heavy stabilizing compound necessary for this part of the lubrication job.

Specialized Lubrication Guns—Certain parts of the unit require special lubricants

A few of the service points that fall in this category are:

- Steering gear.
- Water pump.
- Shock absorbers.
- Brake master cylinder.
- Universal joints.

The best solution is to provide a special gun to handle each of the special lubricants. A better job will result and time will be saved as the mechanic need not spend valuable time changing adapters or lubricants to service a number of points requiring special lubricants, with a single gun.

Loader Pumps—Perhaps the simplest and cleanest way of filling a hand lubrication gun is with a loader pump. A fitting is mounted on the gun which permits making a connection with the loader pump. A few strokes of the loader pump handle is all that is required to refill the gun. Not only is this a cleaner method from the mechanic's viewpoint, but also the lubricant is kept cleaner.

Portable Drains — Portable drains should be available to facilitate draining the crankcase, transmission, and differential. These drains can be rolled under the fleet unit, a telescopic funnel extended to the proper height, and thus the draining job can be completed without unnecessary splashing.

Hose Stands—Certain lubrication department layouts will prove suitable for the use of stationary hose stands. These stands provide outlets for chassis and gear lubricants, water, and air which usually can be piped under the floor to reach the stand.

Ceiling Reels—Ceiling reels offer the advantage of keeping the hose stand off the floor area, at the same time the various guns and lubricate dispensers are always handy. As with the hose stands, lubricant is piped from stationary air-operated pumps to these overhead reels.

Oil Bar—An oil bar will prove to be a worth-while investment when a variety of lubricating oils are used in the shop. The oil bar provides an efficient and clean means for dispensing oil, alcohol, anti-freeze, kerosine, etc.

The fluids can be piped to the dispenser unit direct from the original barrels, which can be in a special storage room or wherever most convenient.

When the oil bar is used in conjunction with a work bench, adequate storage space is available for the various measuring cans, graphite guns, hand tools, and other small items which are needed in the fleet lubrication department.

Smart-looking equipment is an advantage

The principle objective behind the operation of a lubrication department is to obtain a good commercial service job. To get this kind of a job, the following things should be done:

- Handle the work efficiently.
- Promote cleanliness and safety.
- Inspire employees to fullest cooperation.
- Reduce lost time to a minimum.

In working towards the goal of a good commercial service job, a number of more or less intangible factors should be considered.

One of the important is employee morale. Features that may generate good morale among employees must be given equal consideration with those features that are termed of utility value only. On the basis of this reasoning, there is every reason to believe that fleet management should devote careful study to the morale-building advantages of attractive, smart-looking lubrication equipment.

The appealing style and uniform construction of matching cabinets create an atmosphere of efficiency. These cabinets are easy to keep clean and inspire cleanliness in the shop. In many respects the cabinets act as a hood or shield for the vital lubrica-

(*Continued on next page*)

McKAY

Multi-Grip & Regular
TIRE CHAINS

For better traction and longer wear, McKay Tire Chains are your best bet! McKay *Regulars* for normal conditions and McKay *Multi-Grips* for rugged going—both are designed to give reliable protection on hazardous winter roads.

Ask your dealer today for McKay —the *Better Tire Chains* in the "red band" bag.

OTHER McKAY PRODUCTS

- McKay Cleaner-Wax
- McKay Car-Wash
- McKay Chrome-Cleaner
- McKay Metal-Fil

THE McKAY COMPANY
466 McKAY BUILDING
PITTSBURGH 22, PA.

LUBRICATION

(*Continued from page* 135)

tion mechanisms inside, and thus protect the guns and accessories.

These important considerations should be carefully analyzed when deciding upon equipment that may be purchased in cabinets or stripped to the bare essentials. Often the increased costs is more than justified by the excellent morale-building influence of smart-looking equipment.

Maintenance of equipment

Lubrication equipment is used for fleet maintenance operations, and at the same time a certain amount of maintenance should be given the equipment itself.

The items that should be given attention are:

1. Control valve for high pressure chassis lubrication must be kept in correct adjustment when a measured shot delivery is desired.

2. Control valve should be hung on a suitable hook or returned to its customary hanger which usually is incorporated in the equipment housing.

3. Pneumatic lubricant pumps should be oiled daily to lengthen their life.

4. Clean lubricant should be used, because foreign matter will cause check valve trouble and may inflict damage on the closely fitted parts of the pump mechanism.

5. Pressure should be maintained at 125 to 150 lbs. per square inch. This is a good item to check first in event the pumps are sluggish.

6. Another cause of sluggish pumps is any air restriction at the compressor outlet or at the pump inlets. When a pipe is used for an air line, a careful inspection should be made to be sure it is clean of rust and scale.

7. If an air-powered lubrication pump operates continuously without building pressure or delivering lubricant;

   a. Make sure lubricant container is not empty.
   b. Clean the check valve to make sure it is sealing properly.
   c. Make sure lubricant surrounds the foot valve.

8. Keep all swivels and pipe joints tight.

9. Make sure air lines are free of moisture.

10. Casters on portable equipment should be inspected at regular intervals, and any foreign material removed from the axles.

11. Hose that is kept clean will outlast a hose that is covered with grease and dirt.

12. Enamelled cabinets should be washed and waxed to preserve the finish. Care should be taken to prevent battery acid or road salt solution coming in contact with the enamel. Damage from battery acid can be prevented by providing a storage place for the battery hydrometer. Also, tools should be stored in a proper separate location, not on lubrication cabinets.

13. Various parts of the lubrication equipment require thorough lubrication at prescribed intervals. To be on the safe side in this respect, careful attention should be given the equipment manufacturer's maintenance instructions.

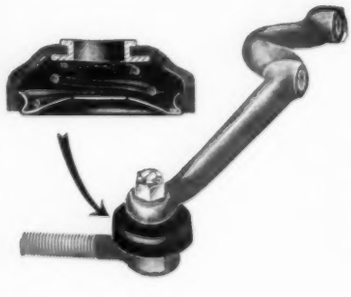
14. Reasonable care should be exercised while using lubrication equipment. END

IT'S NEW

MECHANICS LIKE IT!

No. 462
STEERING LINKAGE KNUCKLE SILENCING CUSHION
for All Cars with Conventional Ball Studs

IT'S A CHAMP-ITEM



To Install: Remove arm from ball stud, place No. 462 over stud with large brass cup against curved surface of rod end and re-assemble. Apply grease gun to ball fitting.

Champ-Items No. 462—the sure, quick way to silence annoying steering linkage noise and eliminate play at the ball joint for more positive steering!

This specially designed cushion consists of a brass cup, brass bushing, bronze tension spring and a neoprene grease retainer. Designed to serve as a grease retainer and dust shield, No. 462 is furnished as an assembled unit ready to install. Another Champ-Items Time Saver—Money Maker! List 75c each.

ORDER FROM YOUR JOBBER

RE-CONDITIONING CHAMP-ITEMS INC. SHORT CUTS

CHAMP-ITEMS, INC.
6191 Maple Ave., St. Louis 14, Mo.

SIZES AND WEIGHTS

(*Continued from page* 86)

highway engineers to prove that such substantially higher axle loads are in fact the principal cause of highway failures.

The motor truck operators point to the years during World War II when shortages of men and materials prevented normal highway maintenance. They point to highway failures where no appreciable volume of heavy truck traffic has ever passed. They ask highway engineers, "How come it has taken you 25 to 30 years to arrive at the conclusion that any such limitation as 18,000 lbs. must now be applied universally?"

The significance of the study recently completed by the Committee on Economics of Motor Vehicle Size and Weight, Department of Economics, Finance and Administration, Highway Research Board, lies in the fact that it represents the completion of the first of several steps that are to be taken by industry and Government for a joint solution of the size and weight problem. Each shared in the cost of the study and each furnished personnel to plan, organize, and conduct it.

List of Donors

The Automobile Manufacturers Association provided the power vehicles, mechanics, and insurance. The Truck Trailers Manufacturers Association furnished the semi-trailers and full trailers. The American Trucking Associations, Inc., and the National Council of Private Motor Truck Owners furnished drivers. The Department of the Army loaned a wrecker to load the test vehicles. The Pennsylvania Department of Highways provided the facilities of two state highway garages for bases of operation and personnel for recording data. The Pennsylvania Turnpike Commission permitted toll-free use of the Turnpike. The U. S. Bureau of Public Roads provided instrumentation and supervisory personnel. Seven major eastern petroleum companies supplied the gasoline and oil.

The field tests were conducted on two Pennsylvania highways. One was a major portion of the Penn-

(*Continued on page* 141)

Your Best Protection
FOR FLAMMABLE LIQUID, GAS AND ELECTRICAL FIRES
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8. Stream pattern forms heat shielding screen to protect operator.
9. Listed and Approved by Underwriters' Laboratories, Inc., and Factory Mutual Laboratories.
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M-S "Ultra Jet" black lacquer

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Factory Packaging

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For further information on advertised products, use post-paid business reply card, page 72.

SIZES AND WEIGHTS

(*Continued from page* 137)

sylvania Turnpike between Carlisle interchange and the New Stanton interchange, a distance of 148.7 miles. This is a four-lane divided highway with 12-foot lanes, a maximum gradiant of 3 percent and a maximum curvature of 6 degrees. It is paved with Portland cement and concrete. The other route was a section of U. S. 11 from Carlisle to Chambersburg, and a section of U. S. 30 from Chambersburg to Greensburg, a total length of 149.4 miles. This route afforded considerable variation of surface types, curvature, gradiant and pavement widths. It consisted mostly of lanes varying in width from 9 to 12 feet. On this route the vehicles confronted narrow shoulders, sharp curves, and restricted sight distances. For most of this route the surface is bituminous with high crowns in many sections.

The test vehicles ranged from a two-axle single-unit truck to a 7-axle tractor, semi-trailer, full-trailer combination. Gross weights ranged from 20,000 lbs. for the 2-axle single unit truck, to 139,500 lbs. for the 3-axle tractor, 2-axle semi-trailer, 2-axle trailer combination.

Tests With 3 Loads

Each vehicle was tested with three gross weights. Lightest weight was obtained with 14,000 lb. axle loads, intermediate weight with 18,000 lb. axle loads, and heaviest weight with 22,000 lb. axle loads. With the exception of the two-axle single unit truck, there was an overlapping of weights between vehicles. This was necessary in order to insure continuity of results from the lowest gross weight to the highest.

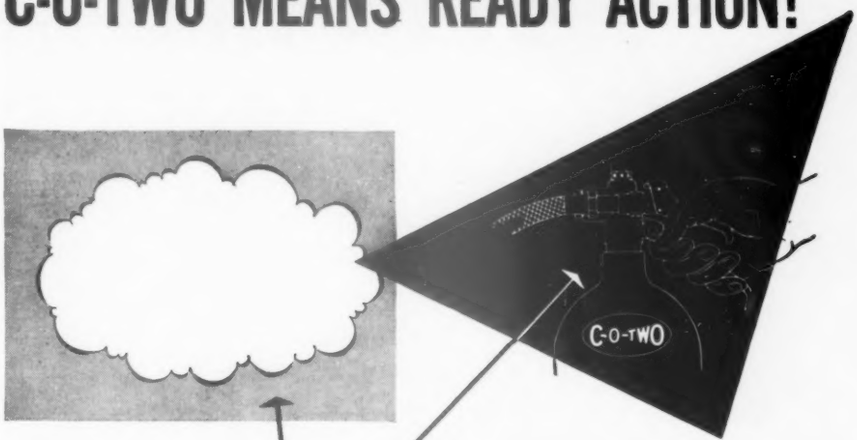
Powered units for test vehicles Nos. 3, 4, 5, 6 and 7 were selected to furnish a power-weight ratio of 400 for the intermediate gross weight of each vehicle. The 400 lbs. per net hp. did not apply to vehicles No. 1. and 2.

An observer rode the test vehicle and recorded the following information as he passed designated control points:

1. Time of day.
2. Fuel motor reading.

(*Continued on page* 143)

C-O-TWO MEANS READY ACTION!



CARBON DIOXIDE + SQUEEZ-GRIP* VALVE

you get QUICK, POSITIVE fire protection

When you release carbon dioxide from a C-O-TWO* Squeez-Grip* Portable Fire Extinguisher . . . just squeeze lever to open . . . release to close. The Squeez-Grip* Valve operates as fast as you can open and close your hand . . . the greatest single contribution to the releasing of carbon dioxide from portable fire extinguishers.

C-O-TWO* is carbon dioxide . . . kills fire in seconds . . . harmless to materials and equipment, even food. It is clean, dry and odorless . . . non-deteriorating and non-conducting . . . highly effective on flammable liquid and electrical fires . . . leaves no after fire mess.

C-O-TWO* makes a complete line of fire protection equipment . . . carbon dioxide hand and wheeled portable fire extinguishers, carbon dioxide hose rack and hose reel fire extinguishing units, built-in carbon dioxide fire extinguishing systems and built-in smoke and heat detecting systems . . . approved by Underwriters' Laboratories, Inc., Factory Mutuals and Government Bureaus.

Let an expert C-O-TWO* Fire Protection Engineer help you in planning complete up-to-date fire detecting and extinguishing facilities for your property now, before fire strikes. Write us today for complete information.

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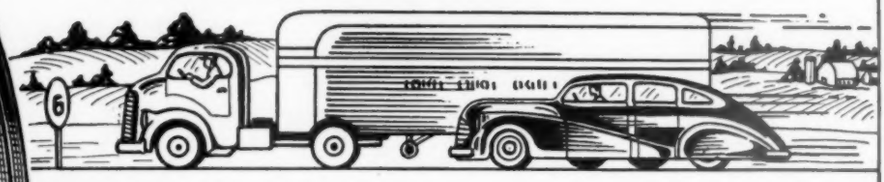
FOR BETTER PERFORMANCE

PUT LIVELY NEW TIRE MILEAGE
Into Your GOOD SMOOTH TIRES



HAWKINSON TREAD YOUR TIRES

More than a Recap!

Scientific rolling radius tread. No tread crunching — tread is neutral at point of road contact . . . eliminating excessive heat.

RUN COOLER • LAST LONGER • STEER EASIER

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LENGTHENS LIFE OF BATTERY

SUPERIOR AUTOMATIC BATTERY FILLER

Priced at Only $4.75 Each

Requires 4½" clearance over top of battery.

ADDS WATER AUTOMATICALLY
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YOU CAN CHECK VISUALLY AND INSTANTLY
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SIZES AND WEIGHTS

(*Continued from page* 141)

3. Temperature of metered fuel.
4. Weather and its probable effects on test.
5. Accumulated gear shifts and brake applications.
6. Accumulated engine revolutions for test vehicles 2 and 6.
7. Odometer reading.

An important finding, applicable to any highway section, was that gasoline consumption and travel time vary in a definite manner with the rate of rise and fall of the highway, regardless of the length of section or the number and steepness of individual grades in the section. This, the Committee concludes, simplifies the problem, since it makes it possible to apply the results of the Pennsylvania study to entire sections of highways. Individual grades do not have to be considered separately.

Results Universally Applicable

Another important finding of the Committee was that the gasoline consumption is definitely related to the gross weight and the travel time to the weight-power ratio. In using the rates of travel time in the report, the weight-power ratio was expressed in pounds per net horsepower and not pounds per gross horsepower.

In its report, the Committee points out as another most significant fact that the results of this study can be applied universally to highways and vehicles. They are not limited to the characteristics of the two routes or the seven test vehicles.

Members of the Performance Study Subcommittee are:

Robert Cass, assistant to the president, White Motor Company.

Vernon Drew, director of research, Fruehauf Trailer Company.

D. C. Fenner, vice-president, Mack-International Motor Truck Corporation.

Fred B. Lautzenhiser, consulting engineer, Motor Truck Division, International Harvester Company.

C. F. Rogers, special assistant to deputy commissioner, Research Division, Bureau of Public Roads.

Carl Saal, Highway Transport Research Branch, Bureau of Public Roads.

Hoy Stevens, chief, equipment and operations section, American Trucking Associations, Inc. END

There's a General Electric

BATTERY CHARGER

for all your charging needs

Here's General Electric's DeLuxe 100-amp Fast Charger. It's a 2-rate charger designed to combine *quick-charge speed with slow-charge completeness.*

All you do is check the battery's condition, set the controls according to the simple instructions on the panel, and forget the job: the DeLuxe Fast Charger does the rest *automatically*—even to shutting itself off.

Full test equipment provides for checking individual cells, over-all battery, voltage regulator, generator charging, and determining proper charging rate and time. There's even a bell alarm to warn of reversed connections.

From its copper-oxide rectifiers to its heavy cables, this charger is a quality instrument. Its full one-year warranty is General Electric's word that it will give long and reliable service.

The New G-E Portable Fast Charger. It's the ideal companion for your 2-rate charger. It's a "natural" for that often needed *extra charging capacity*—and inexpensively. It's priced at only $109.50!*

The Portable Fast Charger is a complete charger—built to deliver years of service under the hardest operating conditions.

All the essential parts are there—timer, circuit breaker, ammeter, fuse, central switch and leads—yet it weighs only 34 pounds. It's as handy as the nearest a-c outlet—and so compact that it can be stored almost any place. And its 80-amp output can be easily regulated for battery condition or variation in a-c voltage.

For the full story on these and other G-E automotive chargers write *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

**Manufacturers' suggested retail price.*

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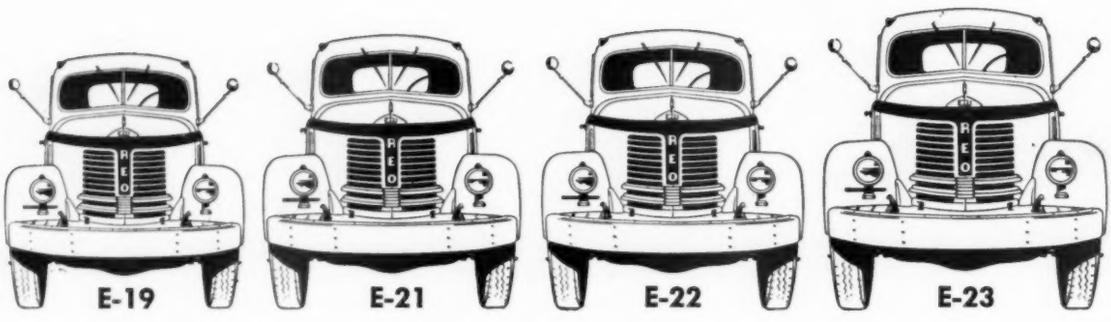
A COMPLETE NEW LINE OF TRUCKS!

- **11 basic models**
- **5 tandem units**
- **7 power-packed engines**
- **Reo low-maintenance design**



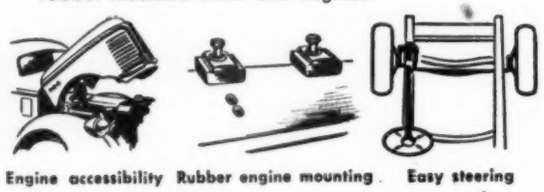
PLUS extra heavy-duty models 30 and 31.

A complete line of trucks ranging from 8,000 lbs. to 76,000 lbs., G.V.W.

And another, all-new REO GOLD COMET ENGINE

REO—No. 1 for engine accessibility . . . for easy steering . . . for safety . . . for economy!

Plus these features that have been tested and proved by Reo for years: balanced wheels • hypoid gears • heavy, cold-riveted frame • ample chain clearance • rubber-mounted cabs and engines.



Engine accessibility — Rubber engine mounting — Easy steering

Chain clearance — Rubber cab mounting — Cold-riveted frame

292-cubic-inch displacement—124 horsepower. Most powerful gasoline truck engine of its size, hauling a greater *net* payload than any other truck engine of comparable displacement!

This weight advantage, plus Reo's short-wheelbase "More-Load" design, enables truck operators to set entirely new load-carrying standards . . . *at lower costs that cannot be matched!*

Gold Comet engines are also available as replacement power plants for all makes of trucks—292- and 331-cubic-inch displacements. **SEE YOUR NEAREST REO DEALER—*TODAY!***

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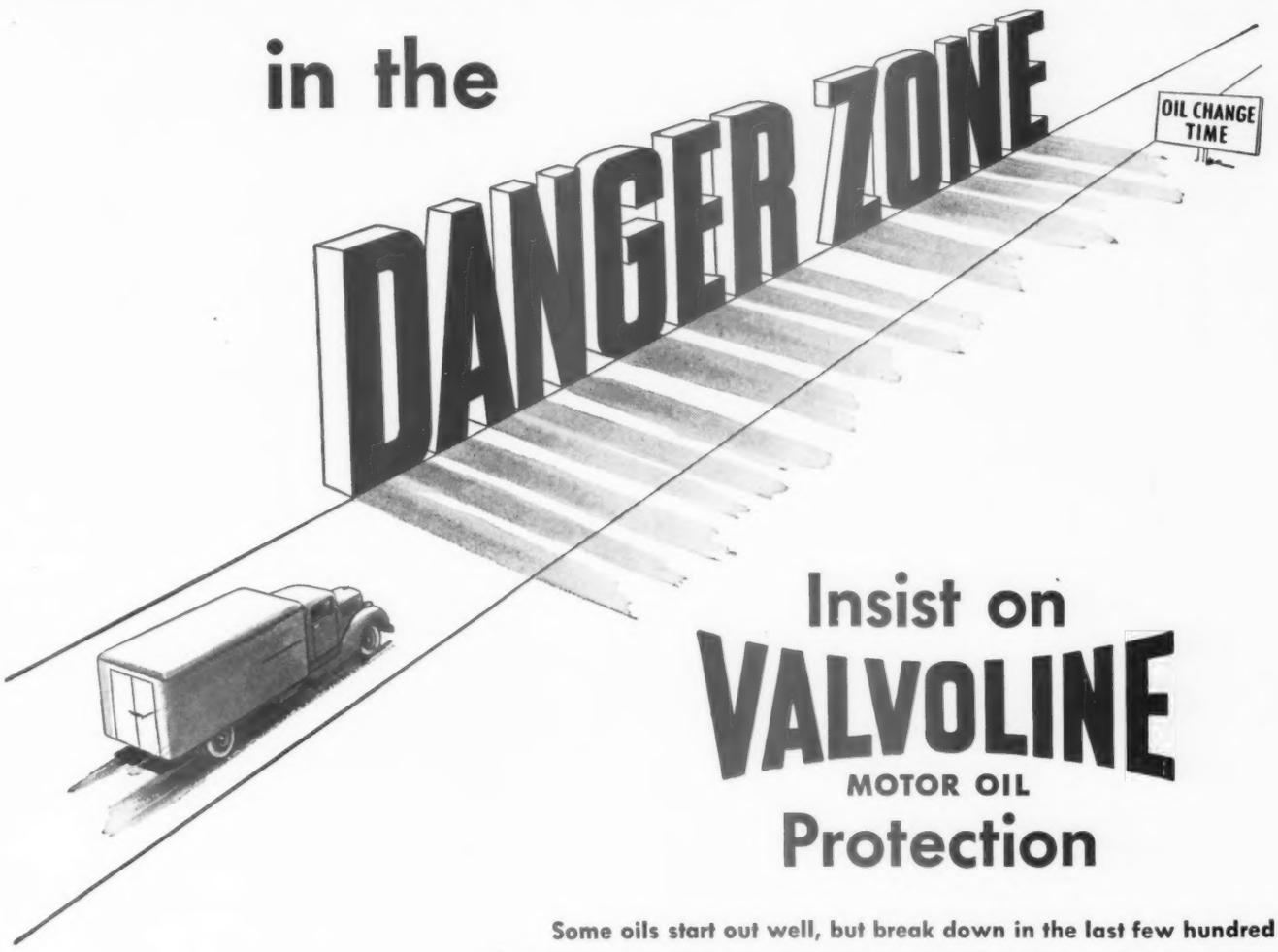
Beware the oil that wears out in the DANGER ZONE



Insist on VALVOLINE MOTOR OIL Protection

Some oils start out well, but break down in the last few hundred miles before the drain—in the *Danger Zone*. Running a few hundred miles with thinned-down oil and worn-out additives is bad enough. But, in a year, that unprotected period adds up to *thousands* of miles—enough to bring on a complete overhaul.

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100% Pennsylvania Oil

Write for Booklet "Evaluation of Valvoline." It tells you how Valvoline keeps your engines *Safe in the Danger Zone.*

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Keep repair and towing costs *down!*

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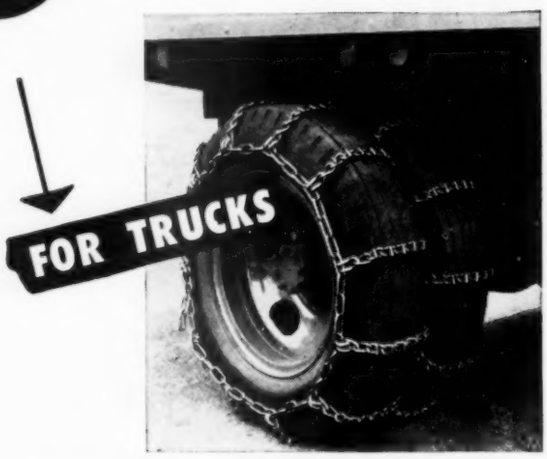
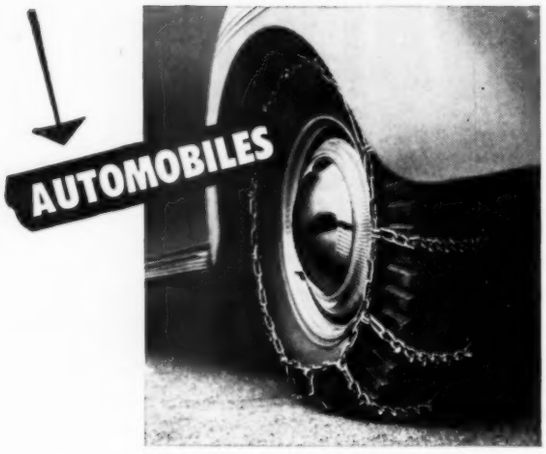
T-M *Tire Chains*





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T-M Tire Chains pay off in *lower towing costs* and *lower repair costs* every time! They're a sure bet for safe and continuous highway travel under the most hazardous winter driving conditions. Available in Bar Reinforced or Twist Link Types—with two or four link spacing—for all makes and types of cars and trucks.

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A GREAT NAME IN
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what makes some dump trucks last longer?

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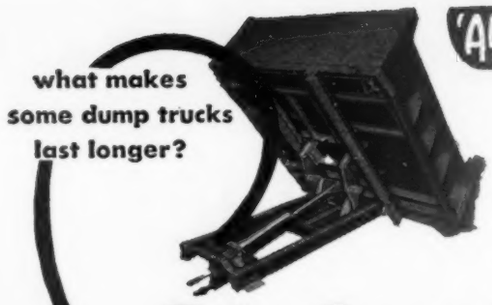
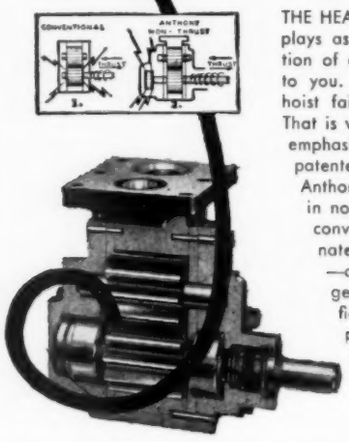


Roller Bearing PUMP with the NON-THRUST *feature*

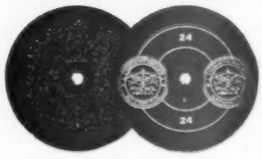
ADDS UP TO 700% TO THE LIFE OF ANTHONY DUMP TRUCKS



THE HEART of a dump truck—the pump—plays as important a part in the operation of a dump truck as your heart does to you. And when the pump fails, the hoist fails and the truck stops working. That is why Anthony engineers place such emphasis on the pump. The amazing patented "NON-THRUST" design of the Anthony roller-bearing pump is found in no other hoist at any price. Unlike conventional pumps, its design eliminates the No. 1 cause of pump failure—destructive mechanical thrust on the gears. This pump has an unequalled field performance record. For *dependable service* DEPEND ON ANTHONY HYDRAULIC HOISTS with the "NON-THRUST" Pump.

ANTHONY CO.
STREATOR, ILL.

SIOUX "Resin-Bond" Phenol Abrasive Discs



not only cut FASTER and with less effort — but they stay "as COOL as a cucumber" even after long punishing service. They're flexible, tough, long-lasting, non-loading — due to the Resin Bond-Tempered Aluminum Oxide grain and moisture proof fibre back.

Authorized SIOUX Distributors Have Them

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YOUR DRIVERS WITH "HEAD MASTER"
UNIFORM CAPS

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1. No tendency to leak from wheel bearings, or to change abnormally in consistency.
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3. No formation of deposits.
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We sincerely believe there is no other wheel-bearing grease on the market that can quite compare with Gulflex Wheel-bearing Grease.

Call Gulf today and ask the Gulf Automotive Service Engineer to call on you to discuss Gulflex Wheel-bearing Grease for *your* operation.

Lower and lower tire-mileage costs

Tire-Mileage Costs become lower and lower when you equip with Gulf Heavy Service Tires. Two reasons why:

Weftless Cord construction throughout —a greater usable strength factor from the first mile of service *and* during the critical break-in period.

Nylon Breakers make recapping a safer investment for you. They absorb and smother bruising road shocks . . . protect the carcass cords against fatigue and breakage over unusually long periods of time.

The Full Story of improved tire mileage and lower cost is yours in a free booklet —"Gulf Truck Tire Data Book." Send for it now!

GULF

GULF OIL CORPORATION • GULF REFINING COMPANY

Gulf Building, Pittsburgh 30, Pa.
Offices in principal cities in 30 states

For further information on advertised products, use post-paid business reply card, page 72.

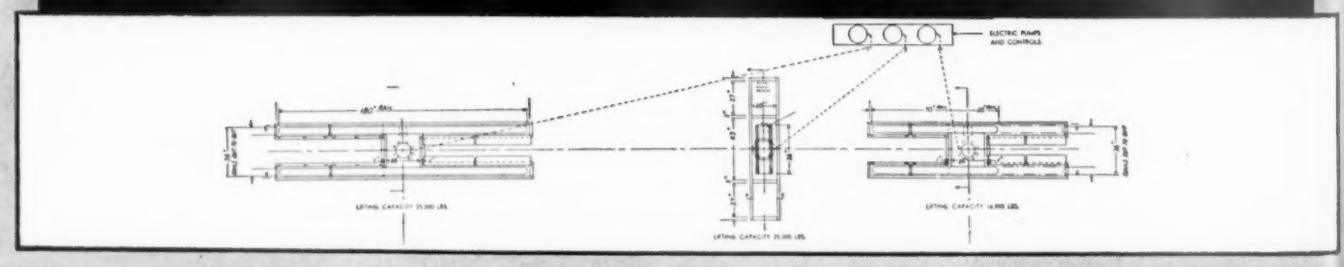
TRANS-OIL, Inc. INSTALLS GLOBE 3-POST RUN OF THE ROAD HOIST

ENGINEERED GLOBE INSTALLATION

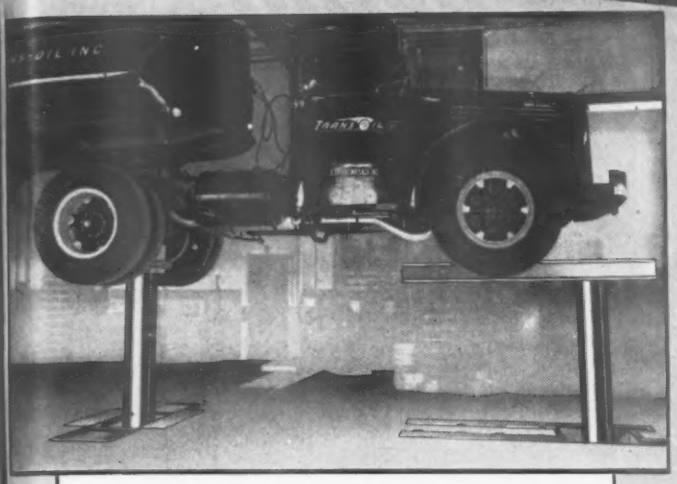
Above—A 5,500 gallon Semi-Trailer and Mack Deisel Tractor raised for inspection and lubrication on Globe type LR-S-ER-21512 3-Post Hoist. Below—Floor plan showing how long rail, saddle post and rotating rail superstructures are located to accommodate all wheelbases from ordinary passenger cars to tractor and semi-trailer trains and six wheelers . . .

Here is another series of pictures showing how leaders in the transport industry are getting increased efficiency in servicing heavy vehicles — through the cooperation of Globe's specialized lifting engineers. This Globe - Engineered installation was designed for Trans-Oil's new general shops at West Chester, Pa., in cooperation with Mr. E. Brooke Matlack. The Globe type LR-S-ER-21512 3-Post Hoist (lifting capacity 66,000 lbs.) is capable of handling all run-of-the-road vehicles. The operator may use one, two, or all three posts of the Hoist, to raise every type of vehicle, including the long wheelbase tractor-trailer units like the one shown above.

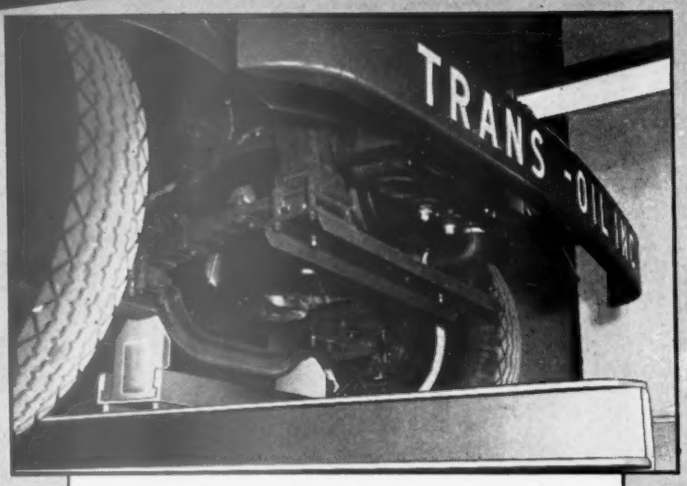
WRITE today for complete information on Globe's Engineering Consultation Service . . . and for illustrated specifications on Globe Bus and Truck Hoists. Address: GLOBE HOIST COMPANY, Bus & Truck Div., East Mermaid Lane, Philadelphia 18, Pa.



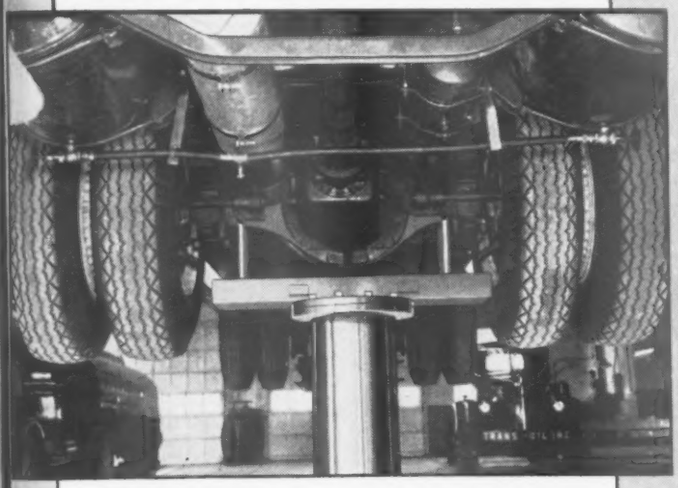
LOOK AT THE ACCESSIBILITY
PROVIDED BY THIS GLOBE 3-POST HOIST



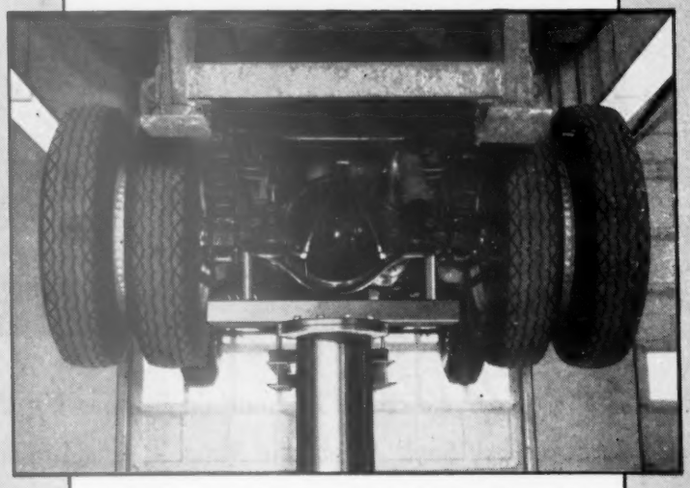
Using only the saddle and rotating rail posts, this Hoist lifts a tractor unit for inspection, lubrication and service.



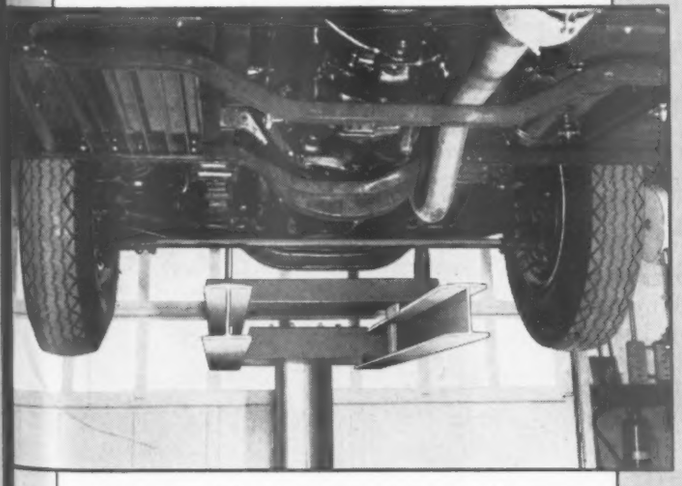
Looking forward toward front of vehicle. Note complete accessibility to front axle.



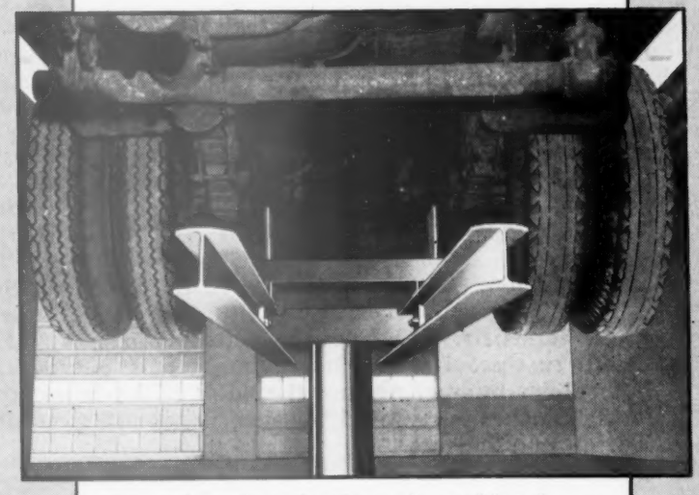
Above photo shows front of tractor drive axle, showing full accessibility of all parts.



Looking toward the rear of the tractor drive axle, positioned over the saddle post of the Hoist.



Rear view of the front axle. All underside parts available for service attention.



Rear view of semi-trailer axle, positioned over the long rail superstructure.

GLOBE HOIST COMPANY

DES MOINES, IOWA PHILADELPHIA, PA.

10 minutes to wash a Truck!

Speed Wash has been successfully used for over 7 years on our fleet of 200 trucks.
Barry Transfer & Storage Co.

SPEED WASH Fountain Brushes Cut Washing Time in Half

Because They Soak, Scrub and Rinse in One Simple Operation!

ACCURATE time studies have proved that Speed Wash brushes cut washing time from 40 to 60 per cent. These brushes are being used successfully, year in and year out, by many thousands of firms for washing trucks, trailers, trains, buses, automobiles, and for a variety of other washing jobs.

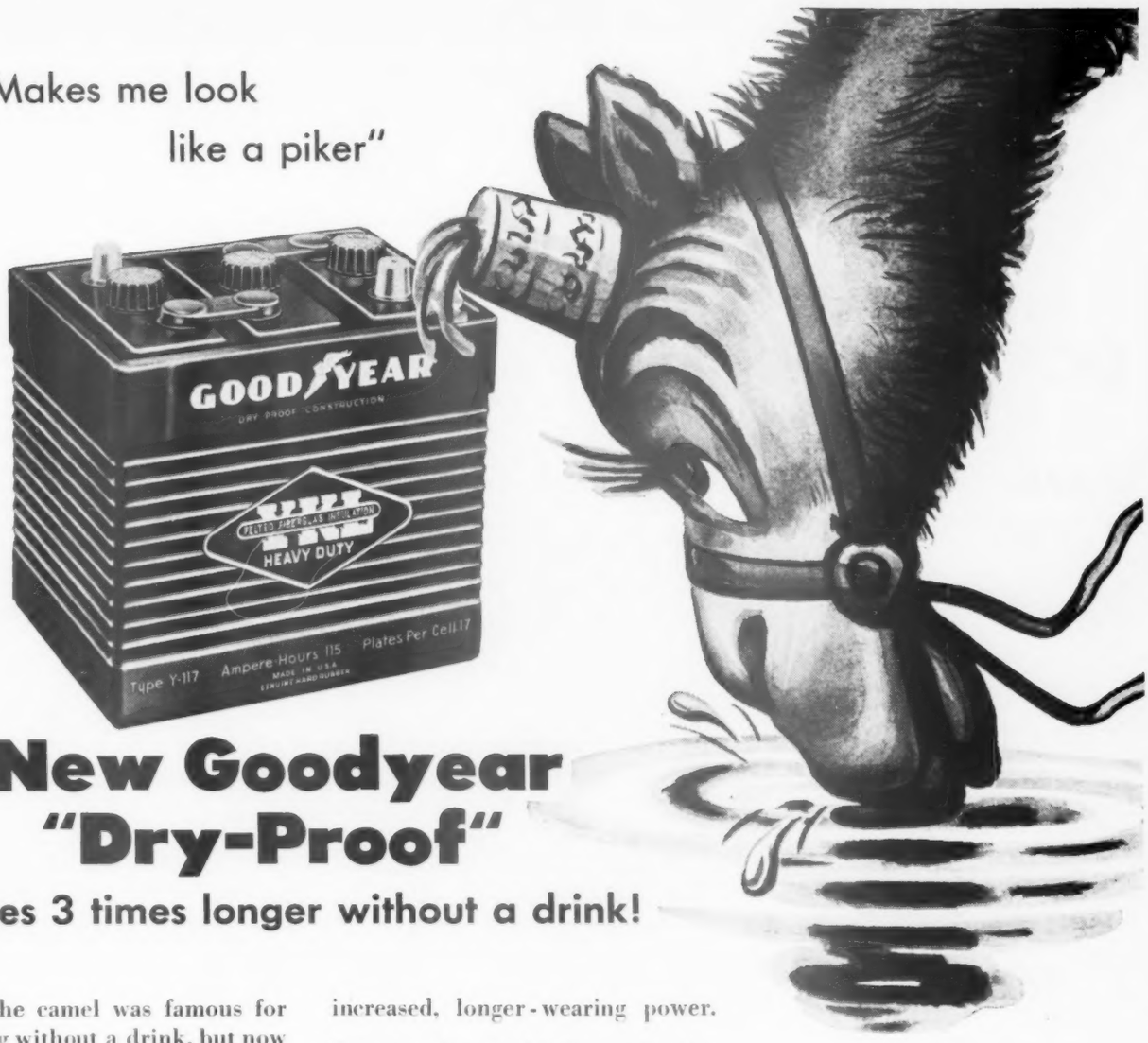
Here is how they work: Clean fresh water is constantly fed to the surface from a standard size hose. It flows through the handle and brush back, and finally through the tufts. The pressure is equalized by eight spaced jets in the hard wood block.

Here is how these brushes are built: Back and handle are of steel. Tufts are a balanced mixture of carefully selected nylon and horsehair. The tufts are stitched into the block by hand with rust-proof wire; they cannot come out or become loose. A rubber bumper around the edge of the brush prevents marring finishes . . . Speed Wash brushes are guaranteed to meet your requirements.

Order today! Send check or money order for postpaid shipment.

MILWAUKEE DUSTLESS BRUSH CO.
530 North 22nd Street • Milwaukee 3, Wisconsin

"Makes me look like a piker"



New Goodyear "Dry-Proof"

Goes 3 times longer without a drink!

ONCE the camel was famous for going without a drink, but now his record's beat! Goodyear's new YKL "DRY-PROOF" battery, *in normal service, needs water only three times a year—⅓ as often as conventional batteries!*

Not only does this remarkable battery hold water longer—it lasts longer—holds its power longer! That's because the "DRY-PROOF" not only prevents damage from low electrolyte level but also has Fiberglas insulation mat construction for extra-long durability—extra-higher-capacity plates for increased, longer-wearing power.

For more dependable, longer-lasting, trouble-free stop-start service—take the advice of light-truck, taxi and tractor owners, everywhere—get Goodyear's new YKL "DRY-PROOF" battery.

Get the facts from your Goodyear dealer now. That's the new YKL "DRY-PROOF"—the most remarkable battery development in years.

For larger trucks and Diesel engine jobs, remember, Goodyear also features a full line of heavy-duty six- and twelve-volt batteries.

Free loan to fleet owners

Fleet owners of 25 or more trucks can get free loan of Goodyear's exclusive PowR SavR. It insures safe, automatic care of idle batteries right in your own garage—batteries always at power peak, instantly ready at any hour. See your Goodyear dealer for details.

YKL BATTERIES —for taxis, tractors, trucks

We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network

GOODYEAR

THE GREATEST NAME IN RUBBER

YKL, PowR SavR—T.M.'s The Goodyear Tire & Rubber Company

SAVE

DOWN TIME
with
SAND-BANUM SPECIAL

It certainly and safely removes and prevents rust and scale in ALL Radiator Cooling Systems

WHILE YOUR EQUIPMENT RUNS

Sand-Banum Special is the pure, highly concentrated colloidal treatment in TABLET form (for your convenience).

Guaranteed absolutely harmless to personnel and equipment.

Requires no neutralizer, leaves no residue, *does not interfere with anti-freeze preparations.*

SAND-BANUM SPECIAL
Removes old SCALE and RUST from radiators water jackets and all parts of cooling system. Also PREVENTS formation of new SCALE or RUST
AMERICAN SAND-BANUM CO. Inc.

Sand-Banum Special Increases Engine and Lubricating Efficiency, and Reduces Maintenance Costs.

SAVES
Time — Trouble — Money — Gas — Oil

1 Tube
Containing 6 Tablets $1.50
protects 6 gallon radiator capacity for 1 year.

TRY — TEST — PROVE
Money Back If Not Satisfied

AMERICAN SAND-BANUM CO., INC.
Established 1926
9 Rockefeller Plaza
New York 20, N. Y.

Form Company To Sell Speedi-Dri

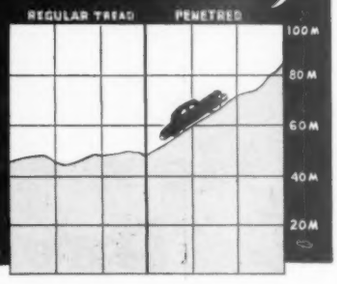
Speedi-Dri Corporation has been organized to market the oil and grease absorbents known as Speedi-Dri and Sol-Speedi-Dri in the New England states, New York, eastern Pennsylvania and part of New Jersey.

R. H. Hubbell, Jr., is president. Other officers are Warren E. Sawyer, Jr., vice-president, secretary and treasurer; and R. A. Hogan, sales manager. The firm has established its main headquarters at 210 W. Washington Sq., Philadelphia. All sales will be handled by the New York City office at 1 Wall St.

Studebaker Lauds School Policemen

The twelfth in a series of traffic safety advertisements sponsored by Studebaker appeared in December and January issues of a number of publications. Headlined "America's School Children and Their Teachers Know What It Takes to Make Traffic Safe," the copy commends school teachers, administrators, and students for the remarkable record established in recent years by school traffic patrols. Grown-ups, motorists, and pedestrians are urged to exercise the same kind of caution displayed by these school groups.

35% TO 100% MORE TIRE *Mileage*
FOR EVERY
FLEET *OWNER-* TRUCK *OWNER-* CAR *OWNER-*
with **Penetred**
SKID-CONTROL *Tires*



THESE amazing results in increased mileage and revolutionary skid control, are obtained with over 5,000 tempered steel claws firmly imbedded in every tire during the treading process. Claws that cut through ice and snow in winter and slippery road film in summer, whenever power or brakes are applied.

Here is SKID-CONTROL you actually feel . . . Here is driving safety and increased mileage no other tire can offer for year 'round driving.

ELIMINATE DRIVING WORRIES

Make a comparison test — prove to yourself that **PENETRED** tempered steel claws out-perform any all-rubber tread . . . Start Faster . . . Stop Quicker . . . are Safer for any weather on any road.

SEND FOR *FREE* BOOK
"The Miracle of PENETRED"
Book of facts that every Fleet operator should know . . . Actual Use Records . . . Construction . . . Performance . . . and the Name of your nearest **PENETRED** Service Station.

Get it TODAY It's FREE

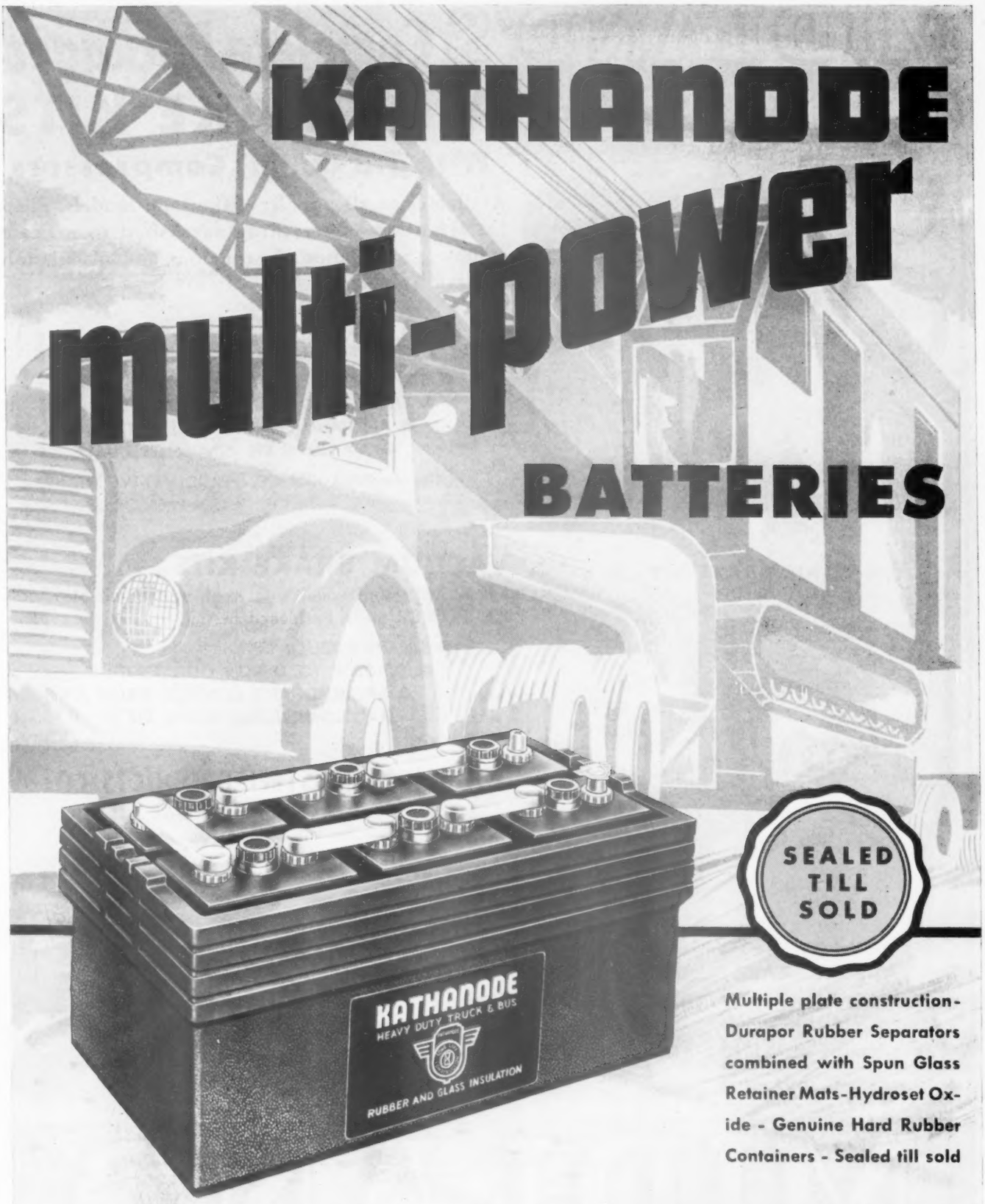
*T. M. Reg. CONSTRUCTION PATENTS APPLIED FOR

PENETRED CORP.
BLOCK M
Marshfield, Wisconsin

OVER 70% OF ALL MAKES OF TRUCKS AND BUSES ARE *Zollner* EQUIPPED
ZOLLNER
HEAVY DUTY PISTONS
ZOLLNER MACHINE WORKS — FORT WAYNE, IND.

For better traction use *Claw*
Double-Duty
TRUCK CHAINS
Columbus McKinnon Chain CORPORATION
TONAWANDA, N. Y.

KATHANODE multi-power BATTERIES



Multiple plate construction - Durapor Rubber Separators combined with Spun Glass Retainer Mats - Hydroset Oxide - Genuine Hard Rubber Containers - Sealed till sold

KATHANODE CORPORATION

a subsidiary of **National Battery Co. St. Paul, Minn.**

Factories: Atlanta • Chicago • Dallas • Leavenworth • Los Angeles • Lynchburg • Marlboro • Memphis • North Bergen • St. Paul
West Salem • Zanesville

Industrial Factories: Depew • Trenton

MIDLAND'S *Complete Packaged* AIR BRAKE KITS

With 7.3 Cu. Ft. Compressors

Available for all popular makes and models. Field installations—everything furnished to make a complete installation. Instructions and installation diagram in each kit.

AIR BRAKE KIT

For Tractor Installation order:

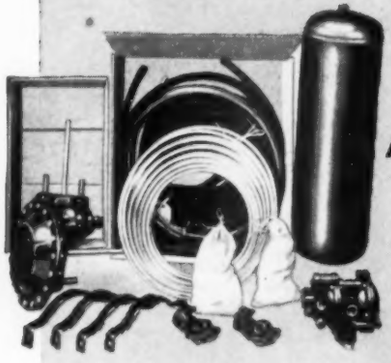
- *STRAIGHT TRUCK KIT*
- *TRACTOR TO TRAILER OUTLET KIT*
- *AIR HAND CONTROL VALVE KIT*
- *AIR HORN KIT (SINGLE OR DUAL)*

Also Available: AIR CONVERSION VALVE KIT.
10 CU. FT. COMPRESSOR.

VACUUM BRAKE KITS . . .

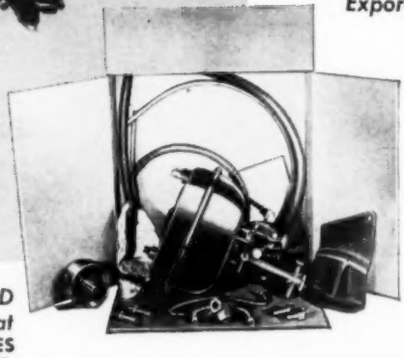
For all makes and models from ½ ton up. Contain Midland's HY-POWER units. Furnished in sizes to suit the vehicle.

- *STRAIGHT TRUCK KIT*
- *TRACTOR TO TRAILER OUTLET KIT*
- *VACUUM HAND CONTROL VALVE KIT*
- *SYNCHRONIZING VALVE KIT*



TRAILER AIR BRAKE KIT

THE MIDLAND STEEL PRODUCTS CO.
6660 Mt. Elliott Avenue • Detroit 11, Mich.
Export Department: 38 Pearl St., New York, N. Y.



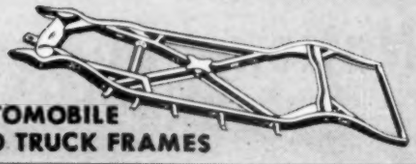
HY-POWER VACUUM BRAKE KIT

TRAILER VACUUM BRAKE KIT

See Your Nearest MIDLAND Authorized Distributor or Branch at
1367 SO. FLOWER ST., LOS ANGELES
6105 E. CLAY ST., PORTLAND, ORE.

MIDLAND

POWER BRAKES



AUTOMOBILE AND TRUCK FRAMES

BUS DOOR CONTROLS

*A load behind is a trip ahead . . .

SOMETIMES IT'S 2 OR 3 TRIPS ***AHEAD,*** BECAUSE, A TRUCK ***USED AS A TRACTOR*** WHEN PULLING A ***TRAILER,*** CAN MOVE 2, 3 OR 4 TIMES AS MUCH AS WHEN USED MERELY AS A TRUCK.

THE SAVINGS GO TO ***YOU,*** AS AN OPERATOR . . . ***YOU,*** AS A SHIPPER . . . AND ***YOU,*** AS A CONSUMER.

THINK THIS OVER!

"A load behind is a trip ahead" is and has been the Kingham slogan for a quarter century

A load behind is a trip ahead

NATIONAL SALES **Kingham UNIVERSAL Trailers** NATIONAL SERVICE

KINGHAM TRAILER COMPANY, INCORPORATED **LOUISVILLE, KENTUCKY**

Willys Moving Body Dies To Toledo

Willys-Overland Motors, Inc., has announced that all body building for all-steel station wagons will be at the Toledo plant in the future.

Tools, dies, jigs and other equipment are being transferred from Briggs Manufacturing Company, Detroit, to Toledo.

For the first time since the early thirties Willys-Overland will soon be producing bodies and stampings for its complete line of commercial and passenger cars. Moving toward that goal, last December the company moved the manufacturing of stampings and Jeep bodies into its new $5,000,000 body stamping shop, from the American Central plant in Connersville, Ind.

Prior to that Willys had turned out bodies for the two and four wheel drive trucks, the panel delivery truck and the Jeepster only. Now the entire body building operation will be consolidated under one roof. The Willys-Overland shop has thirty-one heavy and twenty-five light presses for processing all large, medium and small stampings for the full line of bodies, hoods and fenders.

Alemite Distributors From Service Club

Engraved watches were presented to 16 distributors, charter members of the new "Alemite Distributors' Quarter Century Club," at the thirty-third national Alemite convention in Chicago. F. A. Hiter, senior vice-president of Stewart-Warner Corporation, presided.

WITTEK NOC-OUT
Automotive HOSE CLAMPS

FOR ALL AUTOMOTIVE REPLACEMENT USES

With a variety of size and type, there is a Wittek Noc-Out Hose Clamp for every automotive hose connection. They are easy to put on and they make leakproof connections.

Type A—Radiator Hose Connections

Type G-BB — Booster Brake Hose Connections

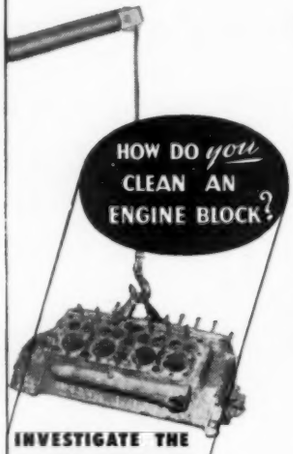
No. G-8-HH for Hot Water Heater Hose

Type HP—High Pressure Hose Connections

WITTEK Manufacturing Co.
4318 W. 24th Pl., Chicago 23, Ill.

Automotive HOSE CLAMPS

DEPENDABILITY IN HOSE CLAMPS FOR OVER A QUARTER OF A CENTURY

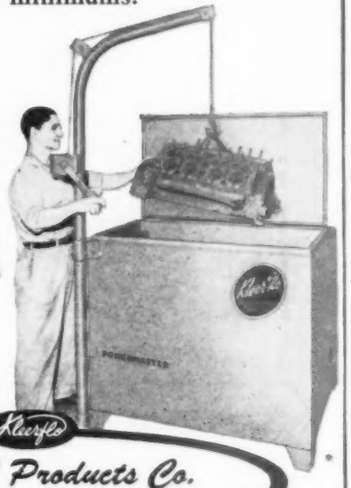


AUTOMATIC POWER AGITATED HOT TANK

. . . The features you have been looking for in a parts cleaning machine.

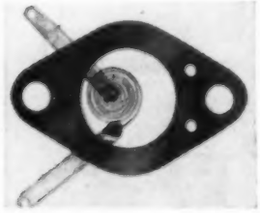
Cleans in a few minutes what now takes you hours! A unit that will definitely reduce your operating costs to here-to-fore unheard of minimums.

INVESTIGATE THE AUTOMATIC Kleer-Flo POWER AGITATED DEGREASER



Write for Price!

Practical Products Co.
2632 Nicollet Ave. • Minneapolis 8, Minn.



QUIK-START CARBURETOR PREHEATER

COLD WEATHER IS NO PROBLEM EVEN AT 20° BELOW

The Quik-Start Carburetor Preheater is guaranteed to start your car or truck instantly in coldest weather. Easily installed at carburetor. Saves time, gas, battery. Unconditionally guaranteed. Thousands in use. Send for details.

Price $4.50 and $5.50

INSTALL ONE NOW ON A 10-DAY TRIAL BASIS
SPECIFY MAKE AND YEAR OF CAR OR TRUCK.

KEMODE MFG. CO., 161 W. 18 St., N. Y. 11, N. Y.

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Let us know so that we can keep copies of Fleet Owner coming promptly.

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330 West 42nd Street, New York 18, N. Y.

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Name .....

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"Another Great Mohawk Chief"

New MOHAWK SUPER CHIEF TRUCK

This extra-tread, heavy-duty tire is outstanding because it gives extremely long mileage. The vented shoulders of the Super Chief Truck Tire reduce heat, thereby insuring longer wear. Its unique tread design provides better traction and freedom from skidding throughout its many extra miles of service.

Extra-Tread SUPER CHIEF TRUCK tires are available in popular large truck sizes.

THE MOHAWK RUBBER COMPANY
AKRON 5, OHIO

MOHAWK

PLAY SAFE with **HEAD GASKETS**

COPPER
STEEL
BLACK

OIL PAN
GASKET SETS

by **FEL-PRO**

INDIVIDUALLY OR IN FULL SETS

WRITE FOR YOUR *FREE* CATALOG *NOW!*

It always pays to renew gaskets when you repair or overhaul an engine. The small cost of regasketing is valuable insurance against future breakdowns and out-of-service losses. With Fel-Pro you can match original equipment precision and quality in Head Gaskets, Oil Pan Gasket Sets, Full Gasket Sets, Packing and Grease Retainers. Play safe . . . regasket all jobs with Gaskets by Fel-Pro!

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FELT PRODUCTS MFG. CO.
1554 CARROLL AVE., CHICAGO 7, ILL.

CUT TIRE COSTS

WITH

ACCURATE MILEAGE RECORDS

You have on hand at all times all operating data, with the EVERHOT Brander and EVERHOT Tire Cost System free to EVERHOT users.

Tire replacement dates, comparison, etc., are at your finger tips. Saves time, costly delays and insures maximum life.

The EVERHOT Brander is easy to use and puts on any desired combination of numbers or letters. They stay put, too. Used everywhere by fleet operators for many years. A post card will bring you free sample tire record cards.

Everhot MFG. COMPANY
MAYWOOD, ILL.

PUROLATOR

Micronic
OIL
FILTER

Filters more abrasives . . . faster!

BETTER than Ever Before

Repower with
RAMCO
10 up
PISTON RINGS

FOR LOCK MAINTENANCE

LOCK-EASE®
Graphited
LOCK FLUID

Protects Against
- STICKING
- RUST
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AMERICAN GREASE STICK CO.
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KING BOLT SETS

Solid Bronze Bushings

Complete with all parts

FOR ALL POPULAR CARS THRU 1949

Wohlert CORPORATION LANSING 5 MICHIGAN

You Can't Go Wrong!

The Wedler-Shuford Co.
St. Louis 3, Mo.

Snap-on Tools
THE CHOICE OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION
8066-B 28th AVE. KENOSHA, WIS.

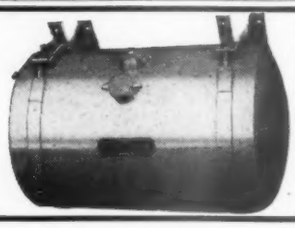
FOR SAFETY, SERVICE AND ECONOMY

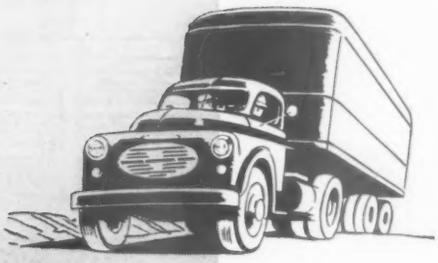
***SNYDER* SAFETY TANKS**

For Catalog and Name of Your Nearest Dealer, Write:

SNYDER TANK CORPORATION

P. O. Box 14, Buffalo 5, N. Y. P. O. Box 2390, Birmingham 1, Ala.

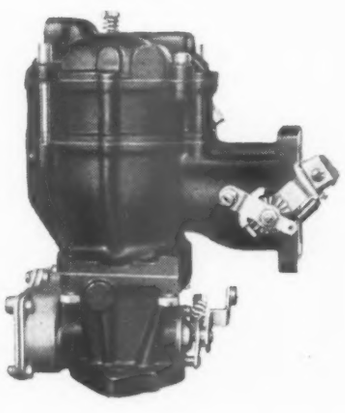




When Performance Cannot be Compromised...

Zenith

is the Engineers' Choice!



Anyone who builds or operates heavy-duty trucks knows what it takes to master the really tough jobs—it takes performance of uncompromised quality. That is why engineers insist on Zenith for heavy-duty carburetion—for they know that *only* Zenith is specifically designed to do these jobs. For the best operation of *your* heavy-duty equipment, there can be only one answer—Zenith—the engineers' choice for rugged performance.

ZENITH CARBURETOR DIVISION OF
696 Hart Avenue • Detroit 14, Michigan

Bendix
AVIATION CORPORATION

MANUFACTURERS OF FINE CARBURETORS AND FUEL FILTERS

For further information on advertised products, use post-paid business reply card, page 72.

THIS $\frac{3}{1000}$ OF AN INCH MEANS LESS "TIME OUT" FOR YOUR TRUCKS

The finish that goes on your trucks is only .003" thick . . . but it can affect your maintenance costs more than you may realize. Some finishes are low in price per gallon . . . yet actually cost you more in the long run because they make frequent visits to the paint shop necessary.

That is precisely why so many progressive operators today rely on Du Pont DULUX Enamel to maintain the good appearance of their fleets. Experience has taught them that handsome, long-wearing DULUX *keeps* its gloss and color despite the highway hazards of stains, weathering and rough handling. This means a smarter looking truck fleet year in, year out . . . and lower day-to-day maintenance costs!

E. I. du Pont de Nemours & Co. (Inc.)
Refinish Sales Wilmington, Delaware

TO SAVE TIME WHEN YOU PRIME, use Du Pont Preparakote under DULUX. Preparakote goes on fast, *fills* as it primes . . . and has maximum adhesion qualities. You can apply successive coats without waiting for each coat to "flash." That's why Preparakote saves you time and money.

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REG. U. S. PAT. OFF.
DULUX
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ENAMEL
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

here come bigger savings

WHEN that battery goes into one of your units, you're on your way to bigger savings—because that battery is double-insulated with Fiberglas* Battery Retainer Mats.

These mats have earned the thanks of fleet owners from coast to coast by holding the power-producing lead oxides against the plates longer . . . by adding to battery life . . . by keeping trucks rolling through the toughest schedules . . . by giving owners big savings.

Ask *your* supplier about the batteries that *save*—the batteries that are double-insulated with Fiberglas Battery Retainer Mats. Owens-Corning Fiberglas Corporation, Dept. 48-A, Toledo 1, Ohio.

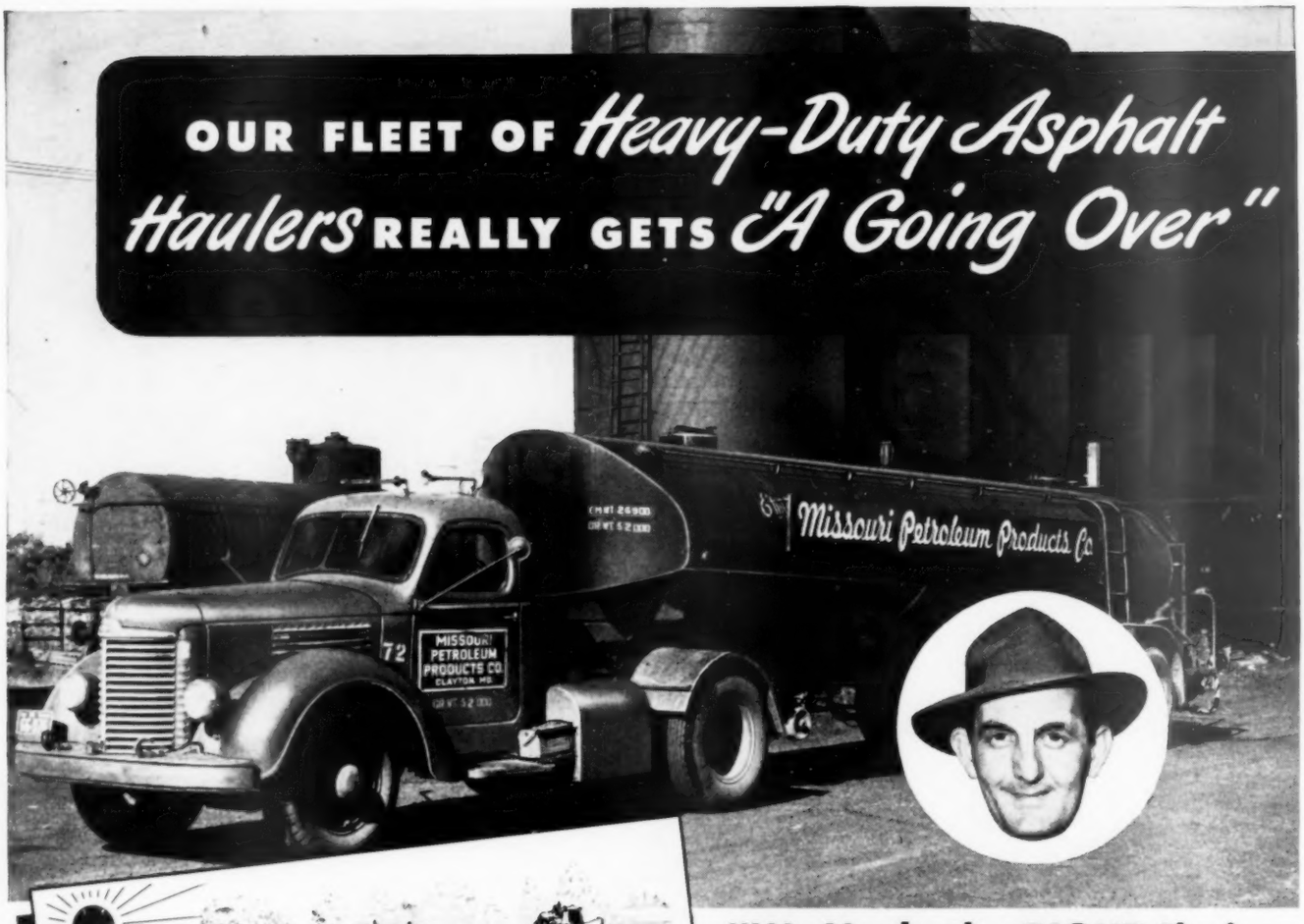
FIBERGLAS IS IN YOUR LIFE...FOR GOOD!

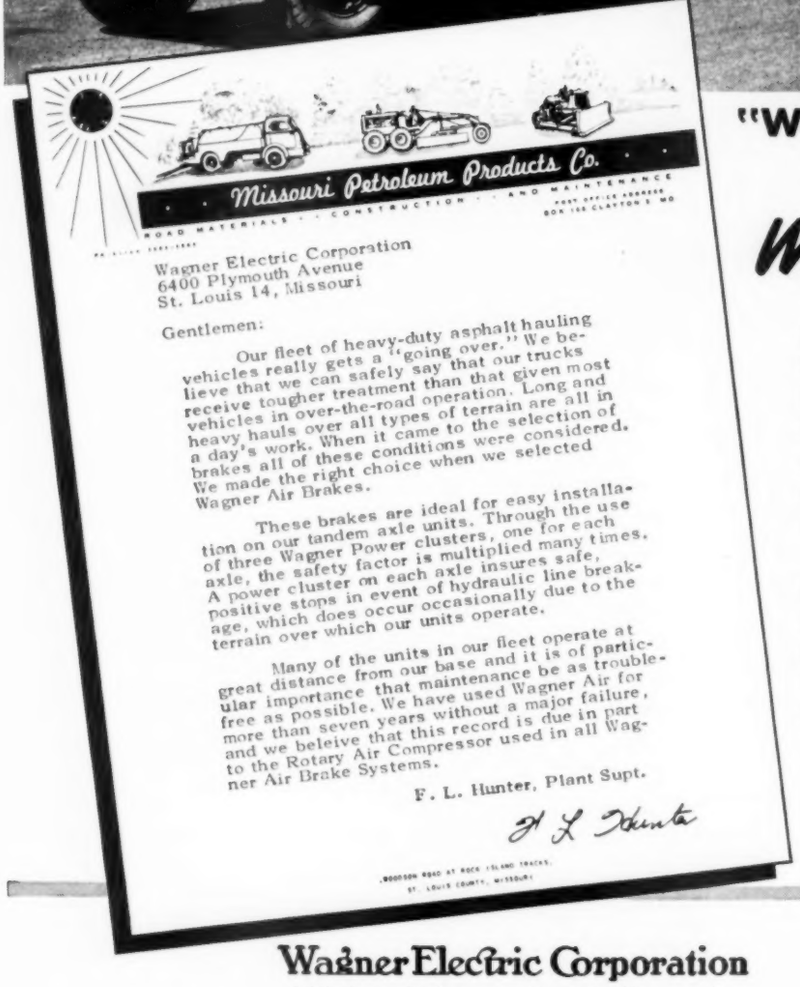
For Longer, Better Service . . . Get Batteries DOUBLE-INSULATED with

OWENS-CORNING FIBERGLAS

**Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.*

OUR FLEET OF *Heavy-Duty Asphalt Haulers* REALLY GETS *"A Going Over"*





Missouri Petroleum Products Co.

ROAD MATERIALS · · CONSTRUCTION · · AND MAINTENANCE

POST OFFICE ADDRESS BOX 158 CLAYTON 5, MO

Wagner Electric Corporation
6400 Plymouth Avenue
St. Louis 14, Missouri

Gentlemen:

Our fleet of heavy-duty asphalt hauling vehicles really gets a "going over." We believe that we can safely say that our trucks receive tougher treatment than that given most vehicles in over-the-road operation. Long and heavy hauls over all types of terrain are all in a day's work. When it came to the selection of brakes all of these conditions were considered. We made the right choice when we selected Wagner Air Brakes.

These brakes are ideal for easy installation on our tandem axle units. Through the use of three Wagner Power clusters, one for each axle, the safety factor is multiplied many times. A power cluster on each axle insures safe, positive stops in event of hydraulic line breakage, which does occur occasionally due to the terrain over which our units operate.

Many of the units in our fleet operate at great distance from our base and it is of particular importance that maintenance be as trouble-free as possible. We have used Wagner Air for more than seven years without a major failure, and we beleive that this record is due in part to the Rotary Air Compressor used in all Wagner Air Brake Systems.

F. L. Hunter, Plant Supt.

F. L. Hunter

BROADSON ROAD AT ROCK ISLAND TRACKS, ST. LOUIS COUNTY, MISSOURI

"We Made the RIGHT Choice When We Selected *Wagner Air Brakes*"

Mr. F. L. Hunter, Plant Superintendent, Missouri Petroleum Products Company, knows from experience that Wagner Air Brakes, the only air brakes with the *Rotary Air Compressor*, give his fleet top performance in heavy-duty service with minimum maintenance.

Increase your profits by cutting your brake maintenance costs . . . install Wagner Air Brakes on your trucks, tractors, trailers and buses. When ordering new equipment, specify WAGNER. Ask for Bulletin KU-50B—It gives complete information.

Wagner Electric Corporation

6480 Plymouth Avenue, St. Louis 14, Mo., U. S. A.

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E50-8

Introducing . . .

THE NEW IMPROVED 1950 OLSON KURB-SIDE

All Aluminum Alloy Truck Body.

Weighs a Thousand Pounds Less—
Carries Half a Ton More!

Truck drivers these days are saving their long, low whistles for the most beautiful body of all—the **New Olson All-Aluminum Alloy Kurb-Side.**

And fleet owners are whistling at their savings—thanks to **Kurb-Side**'s amazing pay-load space! Longer routes, fewer trips, less time wasted!

The **Kurb-Side** is big and roomy—but is she heavy? Far from it! The Queenly-looking, King-size **Kurb-Side** gives you all the operating economies you've ever dreamed of—because it's made of All-Aluminum-Alloy—1000 pounds less dead weight! Lighter, yes! And stronger, too! Less time out for repairs—because **Kurb-Side**'s extra thick 1/8" All Aluminum Alloy construction soaks up punishment!

Three models, all beauties! And they **stay** beautiful, because to cap it off—they're **rust and corrosion resistant!**

Make a date today to see the **New 1950 Olson Kurb-Side** at your local truck dealer's showroom.

Designed by GRUMMAN for OLSON

KURB-SIDE

J. B. E. OLSON Corp.

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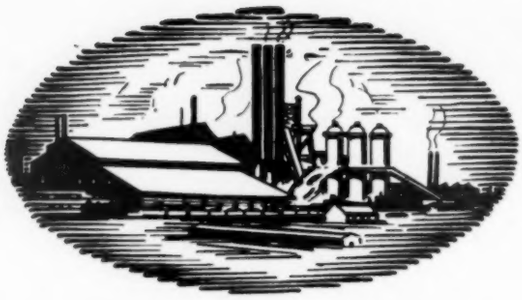

1900 ★ THE MIRACLE OF AMERICA ★ 1950

Freedom and Progress

It's no stretch of the imagination, rather, robust realism to call our past half century a Miracle—U. S. A.

America has set an amazing record of progress in 50 years—but a moment in the history of civilization. A record unequalled by any other political or economic system.

Merely by broad brush strokes, we can all visualize this miracle. Remember the crystal set, the hand-cranked car, the biplane? A far cry from our FM radio, television, hydro-matic drive and supersonic planes.

And here's another phase of the miracle that went hand-in-hand with these and the myriad of intertwined technological advances—ranging from the radio telephone and Bakelite to the X-ray tube and teletype . . . and to atomic energy and its untold potentialities.

- Since 1900 we have increased our supply of machine power 4½ times.
- Since 1900 we have more than doubled the output each of us produces for every hour we work.
- Since 1900 we have increased our annual income from less than $2400 per household to about $4000 (in dollars of the same purchasing power), yet . . .
- Since 1900 we have cut 18 hours from our average work week—equivalent to two present average workdays.

How did we do it? The basic cause for this composite miracle has been the release of human energy through FREEDOM, COMPETITION and OPPORTUNITY. And one of the most important results is the fact that more people are able to enjoy the products of this free energy than in any other system the world has ever known.

THIS IS THE MIRACLE OF AMERICA . . . it's only beginning to unfold.

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PERMALUX*...

looks better...longer!

Much as we dislike generalities in advertising, the phrase, "Looks better, longer", sums up the reason for specifying PERMALUX rather than just Decalcomania. Time—and fleet records—have proven that the *best* Decalcomania is the *cheapest* when viewed in the light of "*cost-per-interval-of-renewal*".

This long-range economy obtained even when the first cost of PERMALUX was much higher than it is today. Naturally, under the "American System", as volume increased, manufacturing costs decreased while techniques improved; steadily lowered consumer prices have further expanded usage. Today's PERMALUX is a better value than ever.

For complete facts, write direct or consult Du Pont Refinish Branches.

*Made with Du Pont "Dulux".

THE Permalux COMPANY

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500 RATHBONE AVENUE AURORA, ILL.

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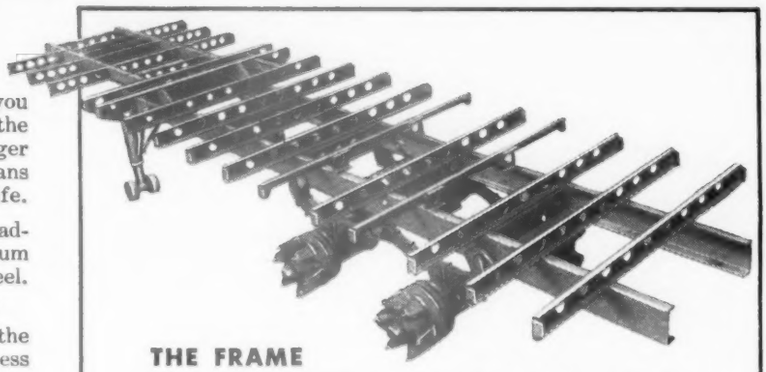
NEW! EDWARDS ALUMINUM TRAILER

The new Edwards Aluminum Trailer gives you an amazing amount of extra payload capacity and the strength to carry it. More payload means bigger profits for you per ton mile. Greater strength means lower operating and maintenance costs, plus longer life.

Edwards is the *only* trailer to cut useless dead-weight without sacrificing strength by using aluminum in combination with light weight, hi-tensile steel. It is the *only* trailer with a double-strength frame.

Edwards takes an all-aluminum body with the same kind of frame that would be used on a frameless chassis. It mounts this body on chassis that has a frame. The double-frame gives double strength.

The Edwards Aluminum Trailer, single or tandem axle, will start paying you profits from the moment you put it to work.



THE FRAME

is the structural foundation of the whole trailer. Edwards uses the same frame construction for both single and tandem axle chassis. Frame and frame cross members are hi-tensile pressed steel. Thus weight is cut to the minimum consistent with sound engineering practice and a stronger, more rugged body results.

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ELECTRICAL EQUIPMENT

has *Everything that Counts*

Fleetmen know the value of a trusted name. Through the years the name Delco-Remy has become a symbol of dependability.

Popularity of a product is important, too. Delco-Remy electrical equipment is original equipment on leading makes of trucks, buses and commercial cars.

Replacement parts can be vital to hard-working fleets. Delco-Remy makes all units needed for replacement . . . not just quick-profit items. Whether you operate new models or old, Delco-Remy has the parts you need for Delco-Remy-equipped vehicles.

And finally, fleetmen know that no product is better than its sales and service organization. Delco-Remy electrical equipment is sold through a nationwide network of wide-awake distributors.

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DELCO-REMY—A UNITED MOTORS LINE
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WHEREVER WHEELS TURN OR PROPELLERS SPIN

HASTINGS ANNOUNCES THE CHROME-FACED STEEL-VENT

FOR HEAVY DUTY USE

HASTINGS USES CHROME WHERE IT DOES THE MOST GOOD —ON THE OIL CONTROL RING!

It's the oil ring that usually determines the life of any set of piston rings. So, to take full advantage of chrome plating in heavy duty sets, Hastings now adds chrome to the Steel-Vent ring.

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But longer life is only one advantage of Hastings chrome facing. It also means much greater resistance to scuffing and less cylinder wall drag.

For Fleet use, your jobber is now supplying Hastings "Motor Engineered" sets with the Chrome-Faced Steel-Vent and its companion ring, the Chromlube. Ask for a Hastings Steel-Vent Chrome Set on your next ring job.

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HASTINGS STEEL-VENT PISTON RINGS

CHROME-FACED FOR HEAVY DUTY SERVICE

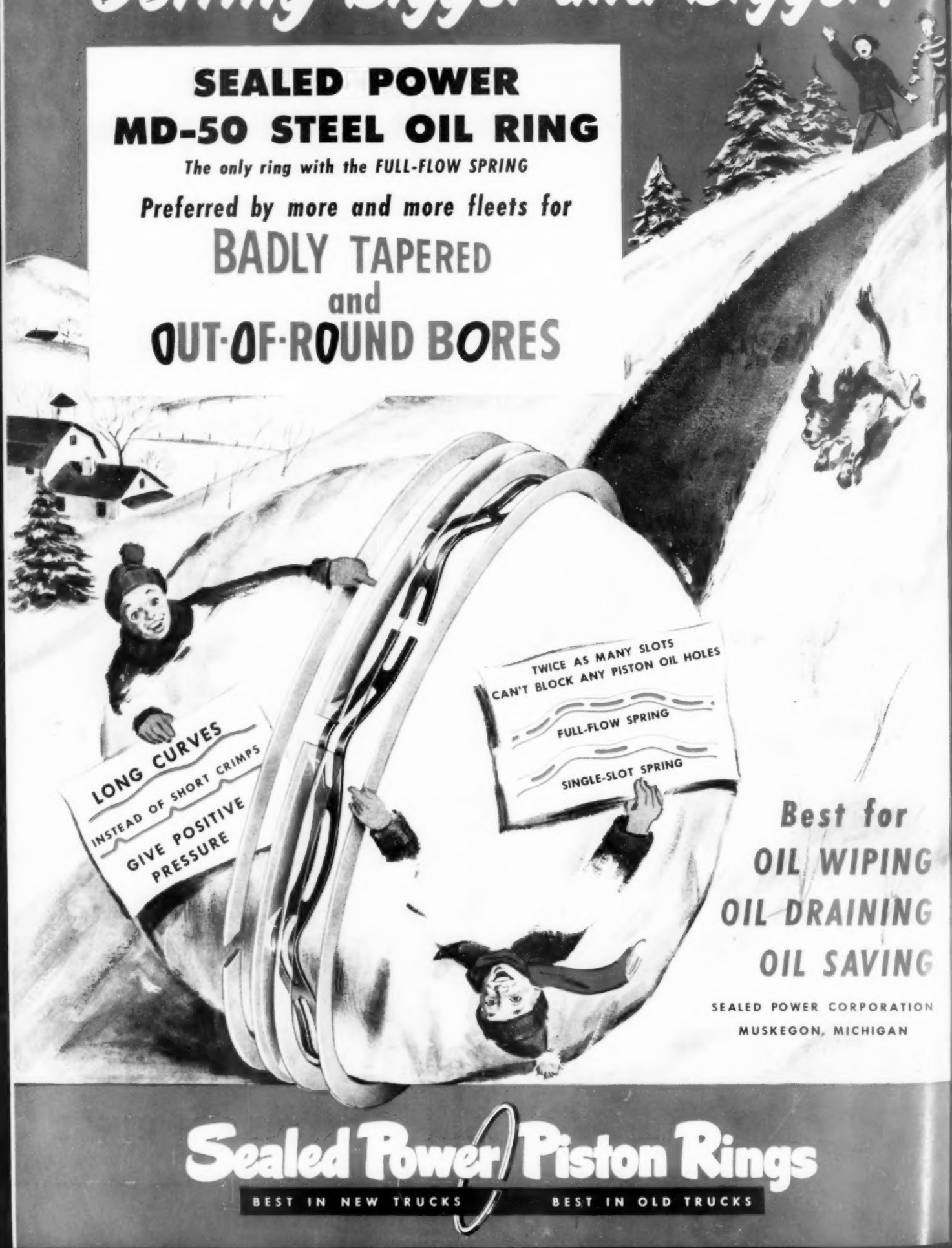
Getting Bigger and Bigger!

SEALED POWER
MD-50 STEEL OIL RING

The only ring with the FULL-FLOW SPRING

Preferred by more and more fleets for

BADLY TAPERED
and
OUT-OF-ROUND BORES



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Sealed Power Piston Rings

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